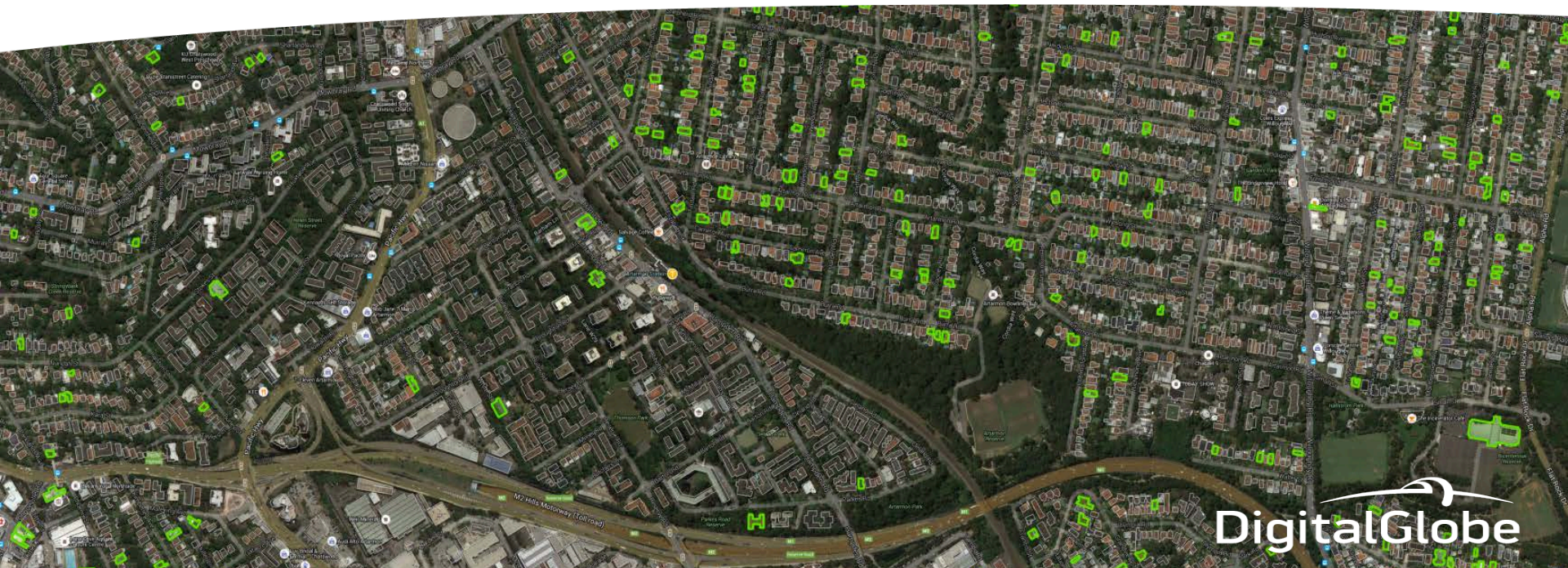


Crowdsourcing the World

Luke Barrington

@lukeinusa

DigitalGlobe



Buildings with Solar Panels (in green) | Adelaide, Australia

DigitalGlobe Proprietary and Business Confidential





Last 24 Hours

7,500,000,000,000 pixels

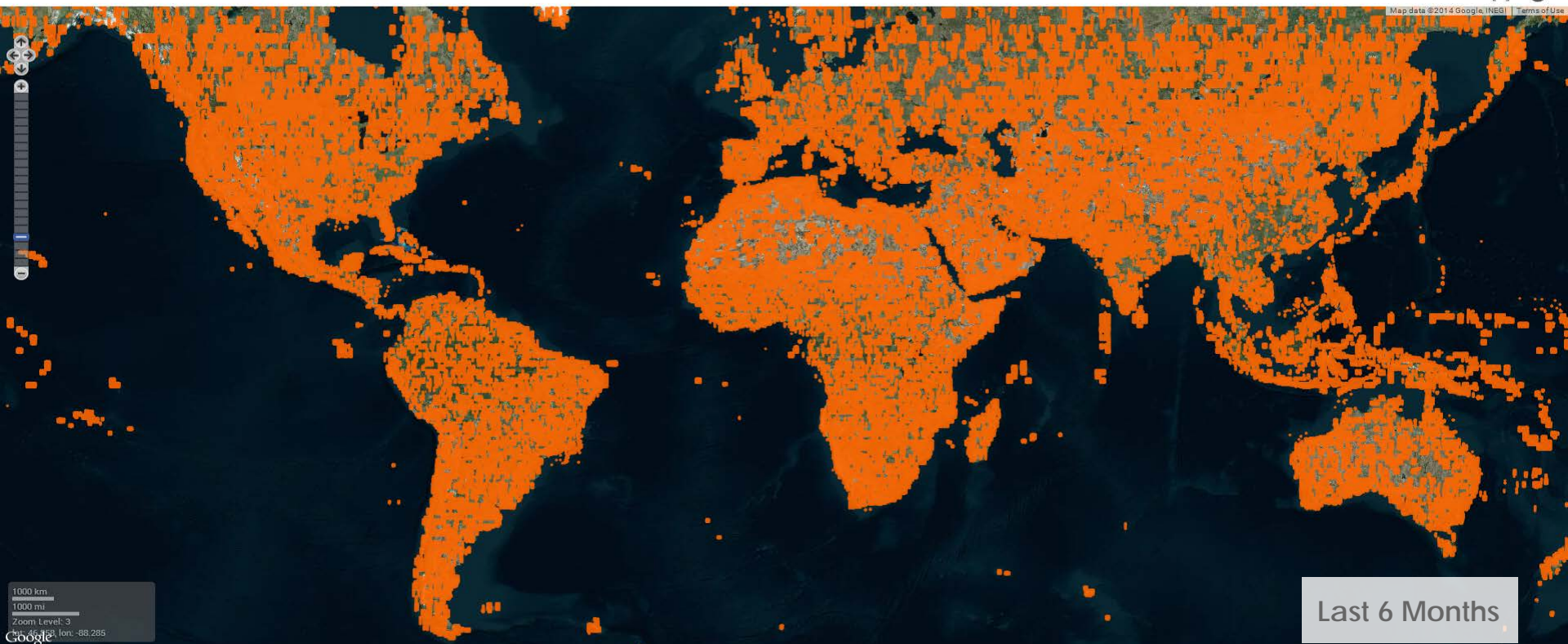


Last 7 Days

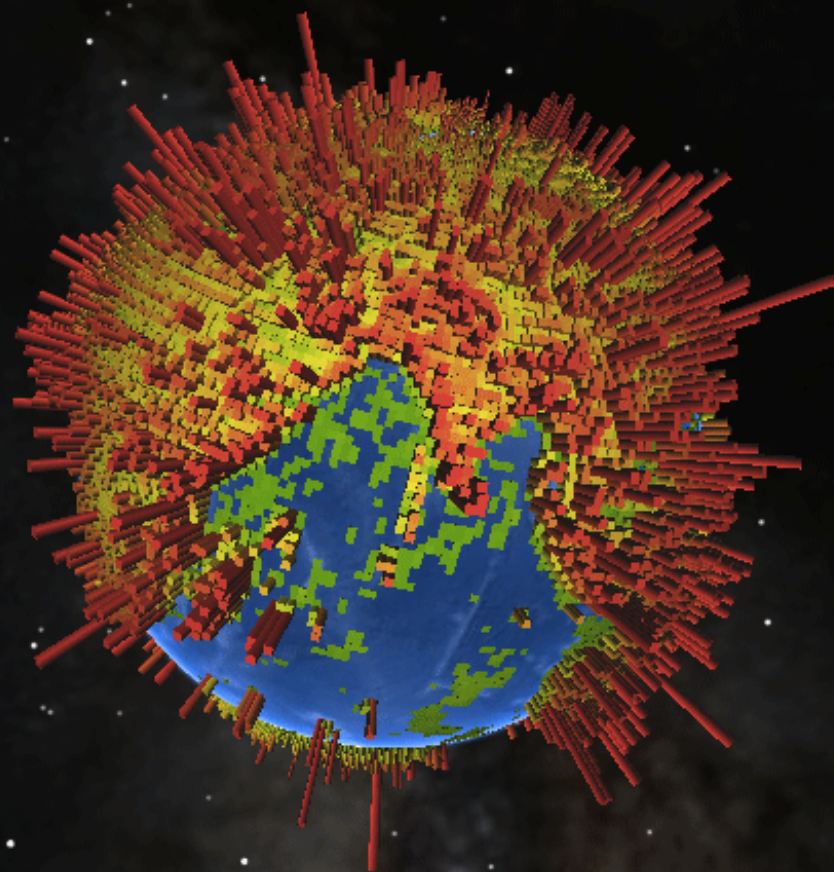
52,500,000,000,000 pixels



225,000,000,000,000 pixels



1,350,000,000,000,000 pixels





CALIFORNIA
GOLD RUSH!
18 49



FROM NEW YORK ...



... TO CALIFORNIA



GETTING THERE IS HALF THE FUN!



CALIFORNIA



THE INDEPENDENT SOLD JEFFERSON ON HIS WAY TO CALIFORNIA.
- NOTICE STAND FOR LEAD



Samuel Brannan
1819 - 1889





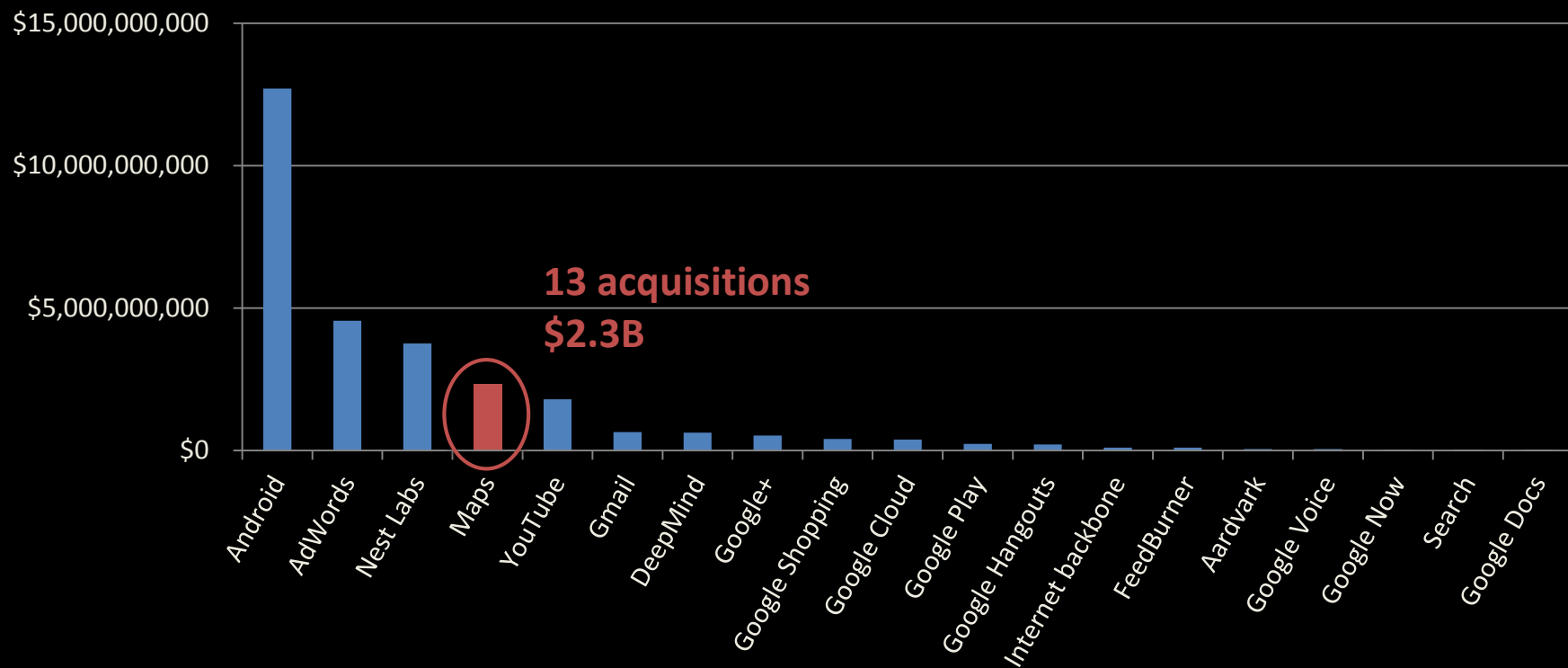
San Francisco, 1849



San Francisco, 2016

<https://www.mapbox.com/blog/san-francisco-digitalglobe/>







deCarta



U B E R





bing



amazon



here





[All](#)[Maps](#)[Images](#)[News](#)[Shopping](#)[More ▾](#)[Search tools](#)

Coffee - Wikipedia, the free encyclopedia

[https://en.wikipedia.org/wiki/Coffee ▾](https://en.wikipedia.org/wiki/Coffee)

Coffee is a brewed drink prepared from roasted **coffee** beans, which are the seeds of berries from the *Coffea* plant. The plant is native to subtropical Africa and ...

[History of coffee](#) - [Coffee bean](#) - [Coffea](#) - [List of coffee drinks](#)

Coffee | Sainsbury's

[www.sainsburys.co.uk/shop/gb/.../drinkstea**coffee**andhotdrinks**coffee** ▾](http://www.sainsburys.co.uk/shop/gb/.../drinksteacoffeeandhotdrinkscoffee</b)

Buy **Coffee** online from Sainsbury's, the same great quality, freshness and choice you'd find in store. Choose from 1 hour delivery slots and collect Nectar points.

Coffee Beans & Ground Coffee | Whittard of Chelsea

[https://www.whittard.co.uk/**coffee** ▾](https://www.whittard.co.uk/coffee</b)

A worldwide range of freshly ground **coffee** and artisan **coffee** beans, including single origin coffees and our own bespoke blends. ... Connoisseurs know that a good **coffee** can be just as complex as a fine wine, with layered flavours specific to the origin and roast of the bean.

Pact | Home

[https://www.pact**coffee**.com/ ▾](https://www.pactcoffee.com/)

The best **coffee** you've ever made. Fresher, better-tasting **coffee**, in bags and pods, delivered to you as you need it. Get startedFind out more ...

Has Bean Coffee

[www.hasbean.co.uk/ ▾](http://www.hasbean.co.uk/)

Green and roasted beans, **coffee** makers, and home roasting equipment.

Luxury Coffee selected by Coffee Experts | Nespresso

[https://www.nespresso.com/uk/en/pages/**coffee**-landing-page ▾](https://www.nespresso.com/uk/en/pages/coffee-landing-page)

Hidden inside each Nespresso capsule are the finest coffees in the world, which have been blended, roasted and ground with the utmost skill by our **Coffee** ...

[More images](#)

Coffee

Drink



Coffee is a brewed drink prepared from roasted coffee beans, which are the seeds of berries from the *Coffea* plant. The plant is native to subtropical Africa and some islands in southern Asia. [Wikipedia](#)

Nutrition Facts

Coffee ▾

Amount Per 100 grams ▾

Calories 0

	% Daily Value*
Total Fat 0 g	0%
Saturated fat 0 g	0%
Polyunsaturated fat 0 g	
Monounsaturated fat 0 g	
Trans fat 0 g	
Cholesterol 0 mg	0%
Sodium 2 mg	0%
Potassium 49 mg	1%
Total Carbohydrate 0 g	0%
Dietary fiber 0 g	0%

All

Maps

Images

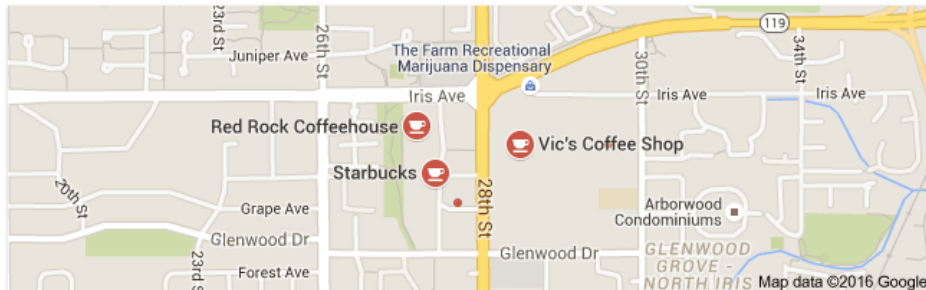
News

Shopping

More ▾

Search tools

About 932,000,000 results (0.75 seconds)



Rating ▾ Price ▾ Hours ▾

Starbucks

4 reviews · \$\$ · Coffee Shop
Iconic Seattle-based coffeehouse chain
3325 28th St
Closing soon: 8:00 PM



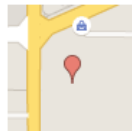
Red Rock Coffeehouse

4.3 ★★★★★ (29) · \$\$ · Coffee Shop
Relaxed coffee shop with light fare
3325 28th St
Closed now



Vic's Coffee Shop

4 reviews · Coffee Shop
3348 28th St



More images

Coffee

Drink



Coffee is a brewed drink prepared from roasted coffee beans, which are the seeds of berries from the *Coffea* plant. The plant is native to subtropical Africa and some islands in southern Asia. [Wikipedia](#)

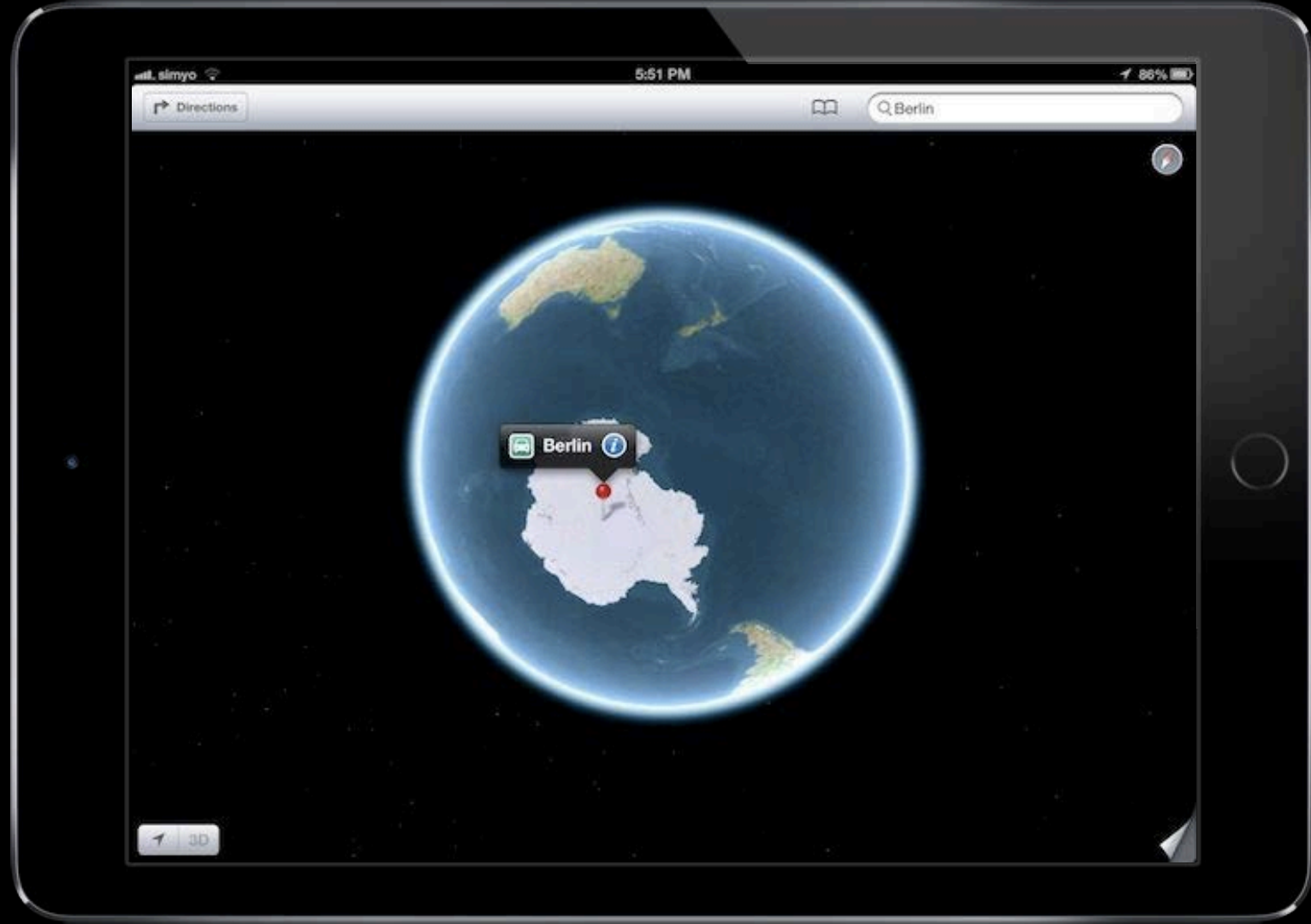
Nutrition Facts

Coffee ▾

Amount Per 100 grams ▾

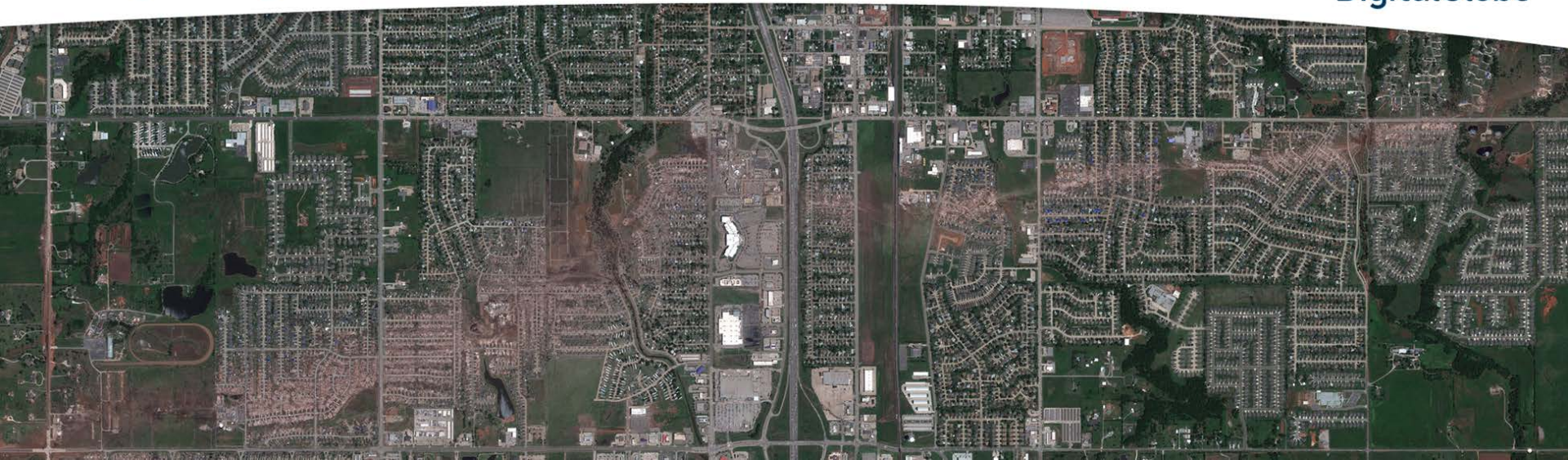
Calories 0

	% Daily Value*
Total Fat 0 g	0%
Saturated fat 0 g	0%
Polyunsaturated fat 0 g	
Monounsaturated fat 0 g	
Trans fat 0 g	
Cholesterol 0 mg	0%
Sodium 2 mg	0%
Potassium 49 mg	1%
Total Carbohydrate 0 g	0%

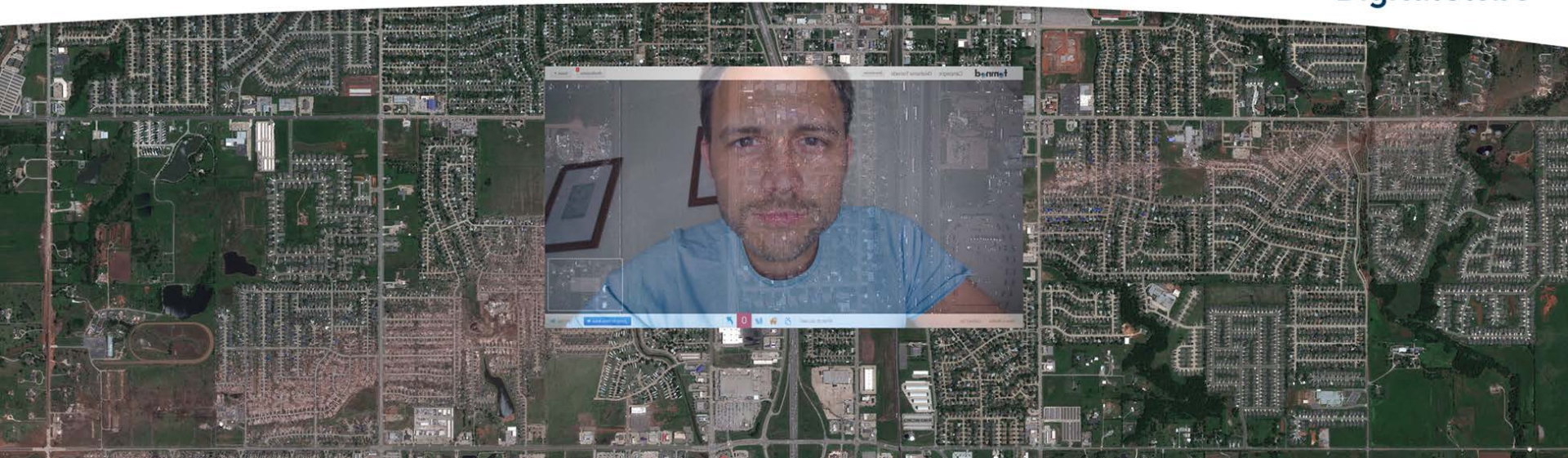








How might we quickly analyze this image?



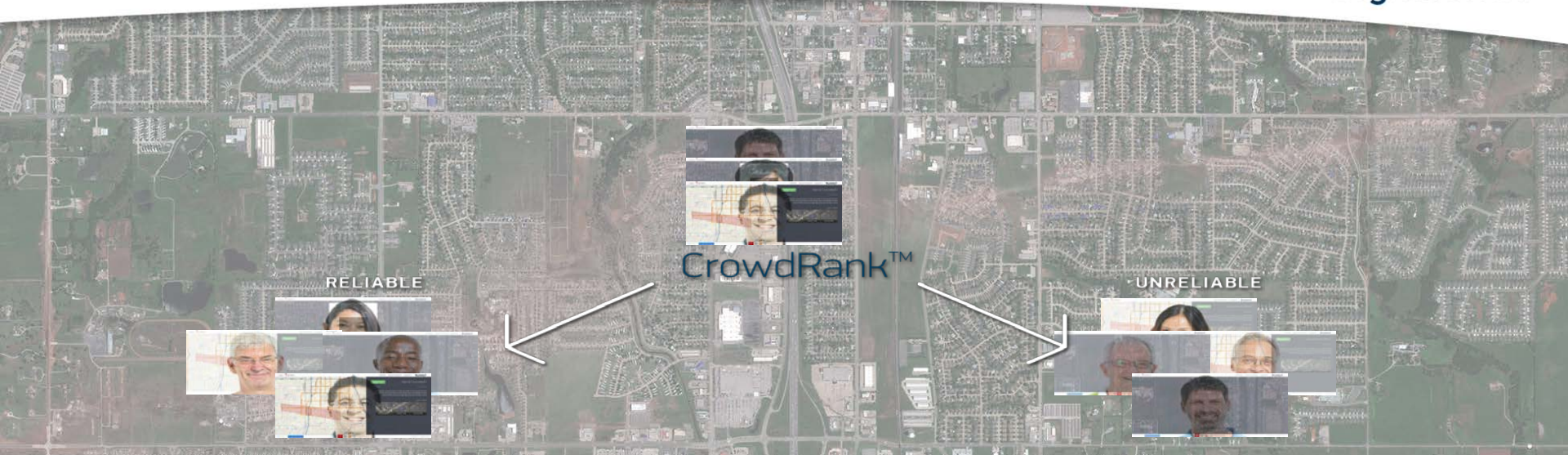
How might we quickly analyze this image?



How might we quickly analyze this image?

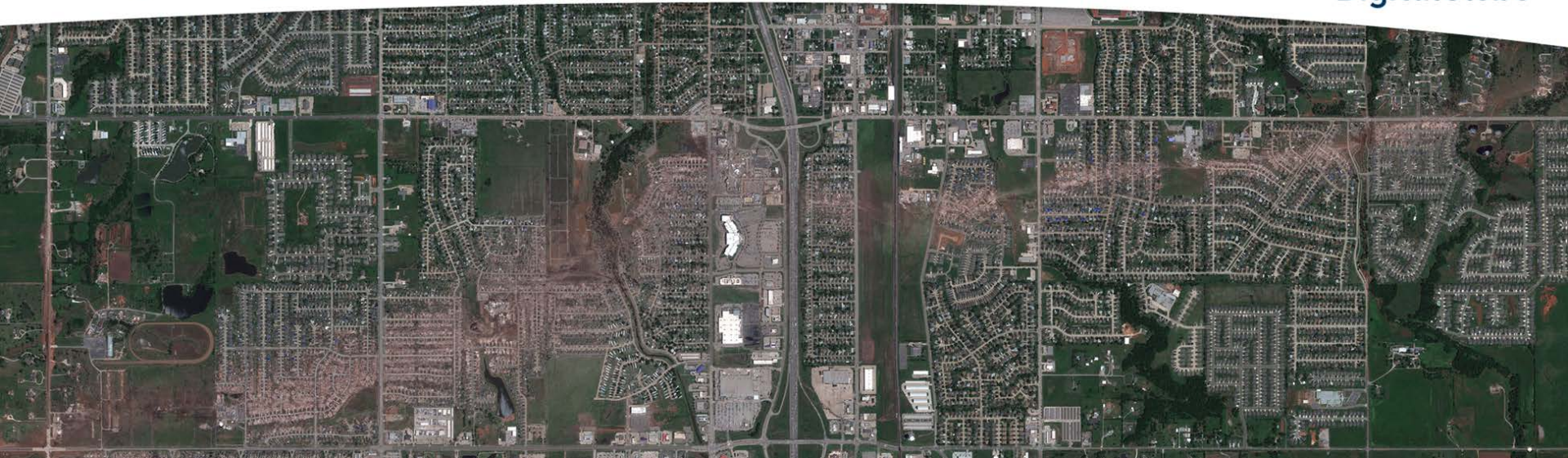


Our CrowdRank™ Technology Develops the Consensus of the Crowd



$$P(x \text{ is interesting}) = \sum_i \frac{P(x = i) \cdot P(\text{person}_i \text{ is an idiot})}{P(\text{people on the Internet are idiots})}$$

Turning This Image...



...Into This Damage Map, In an Hour



Destroyed Property Value = \$1.95M

Sampson Flat Fire

South Australia

January 2015





WV02 capture: Jan 4, 2015





1



Burned Building



Damaged/Blocked Road



Active Fire



Getting Started



Share this Location



Jump to Unexplored Area

Your Campaign Progress



9



1



10



11 Agree

20 m
100 ft

OLDEST



NEWEST

POWERED BY DigitalGlobe

Mon 1/5/2015 1:07 AM UTC

Pre-Event

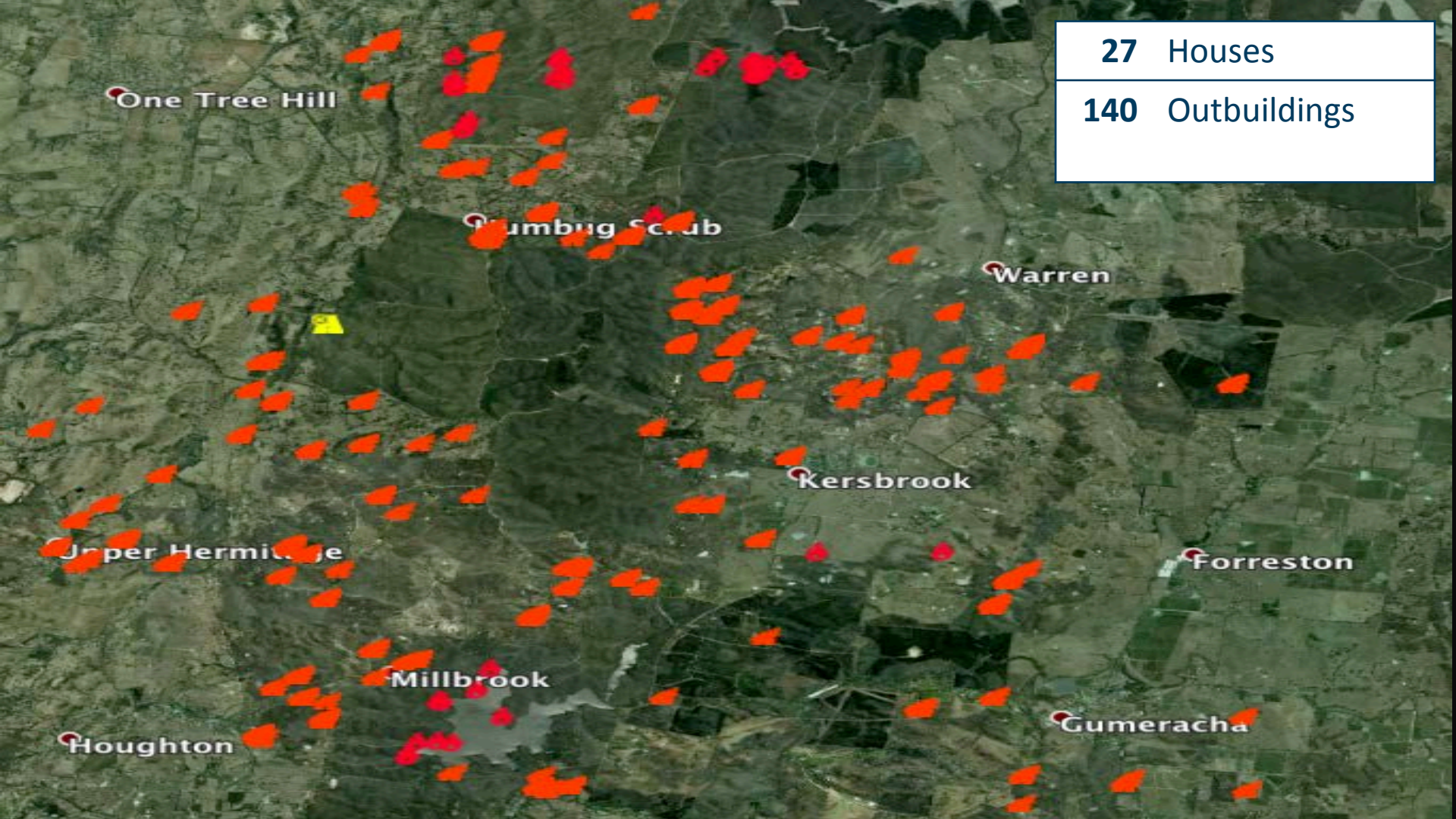
Post-Event

Close

Tomnod Hints

Next

If you get stuck in clouds or smoke, try jumping to a new area.



27 Houses

140 Outbuildings

Burned Building ID 38246

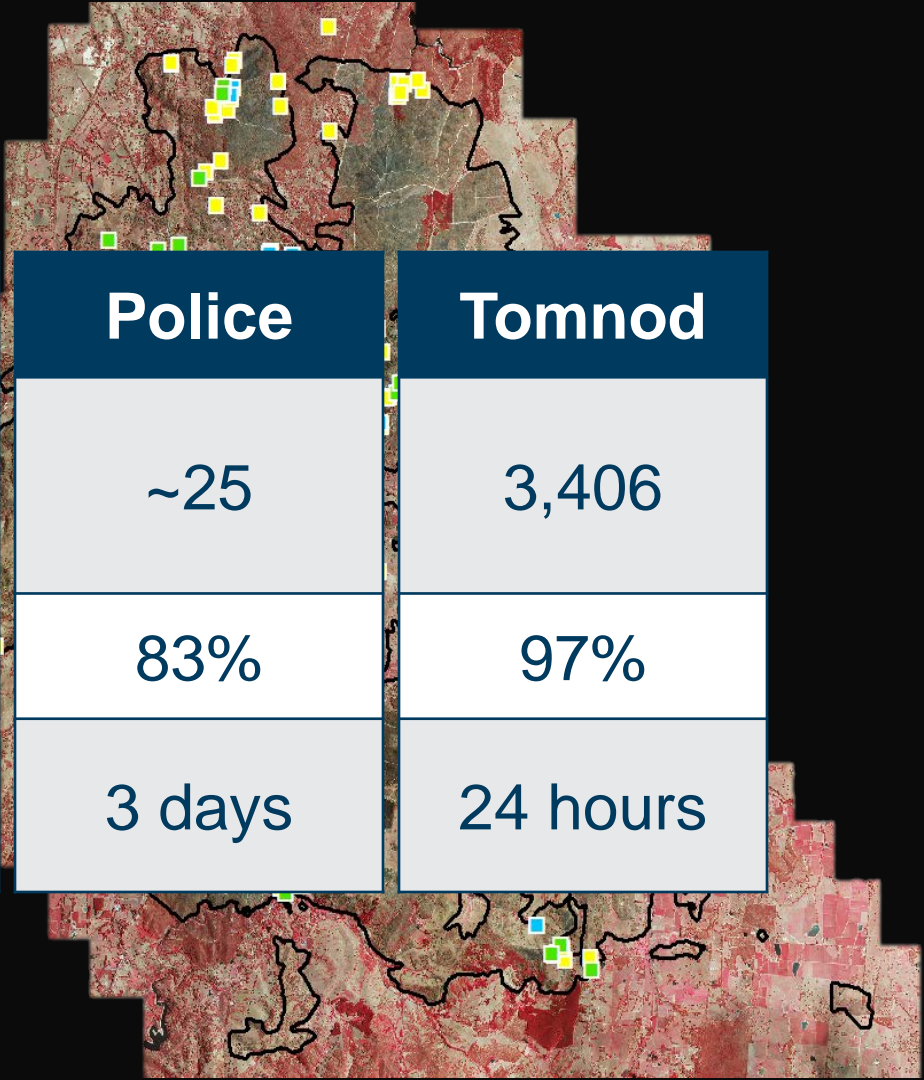


CrowdRank: 100%
Confirmation: 77
people

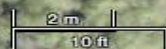
Image © DigitalGlobe 2015

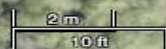
[See this point on](#) **tomnod**

Directions: [To here](#) - [From here](#)

An aerial photograph of a coastal region, likely a bay or estuary, with a dark coastline. The land is a mix of green and brown, indicating vegetation and bare ground. Numerous small, colored squares (yellow, green, blue) are scattered across the land, particularly concentrated in the upper and lower right areas, possibly representing search locations or data points.

	RDA	Police	Tomnod
Number of Searchers	~10	~25	3,406
Accuracy	64%	83%	97%
Time to Complete	2 weeks	3 days	24 hours





tomnod Statistics

44km²

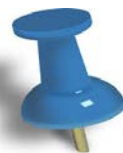
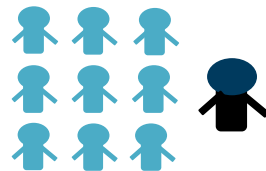
2cm RESOLUTION IMAGERY

3.3 **MILLION**
MAP VIEWS



11,338

TREE TAGGERS



2 MILLION
TAGS PLACED



937,362

AUSTRALIAN TREE FERNS



981,519

PARTIAL TREE FERNS



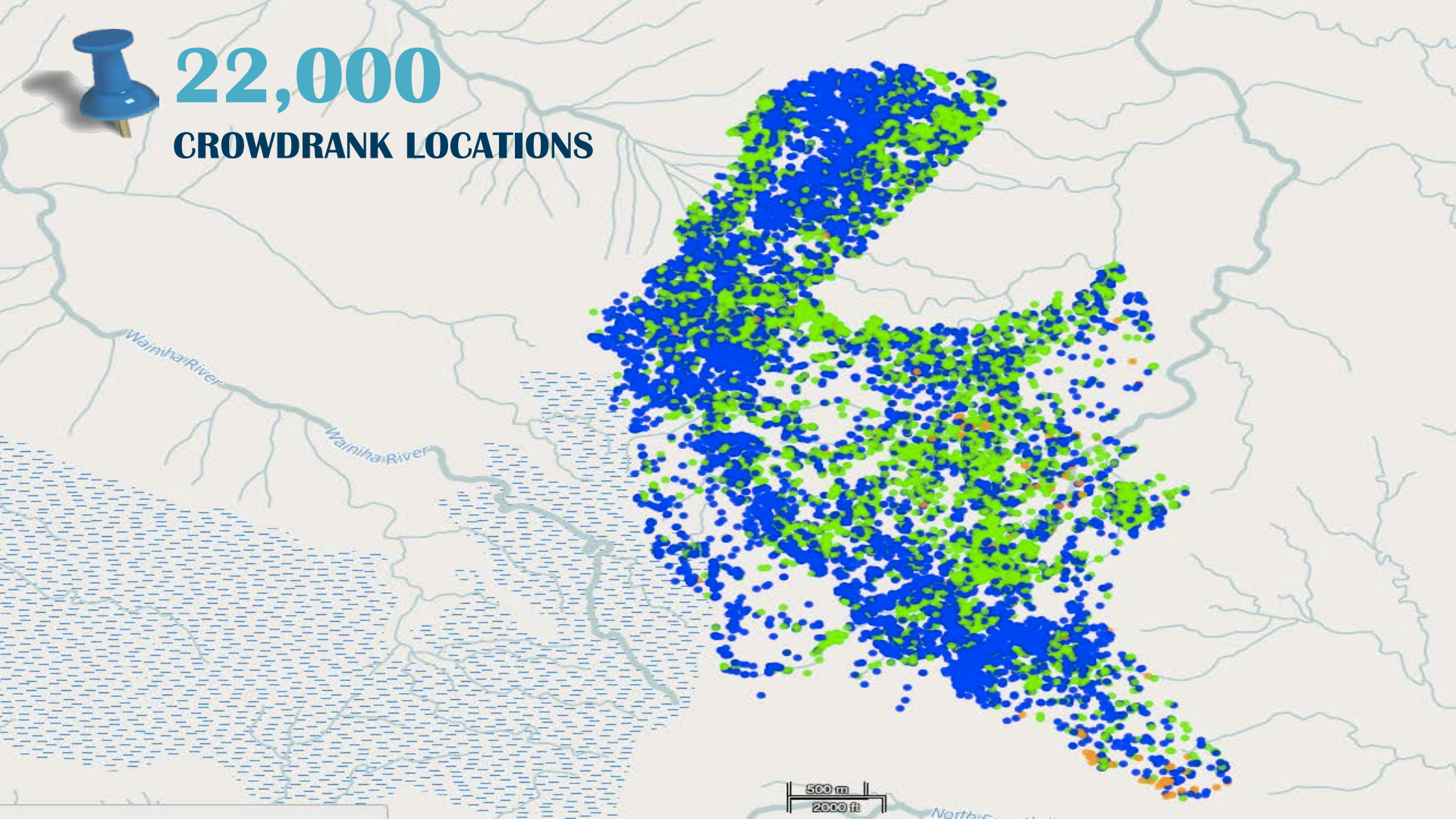
51,286

AFRICAN TULIP TREES



22,000

CROWDRANK LOCATIONS





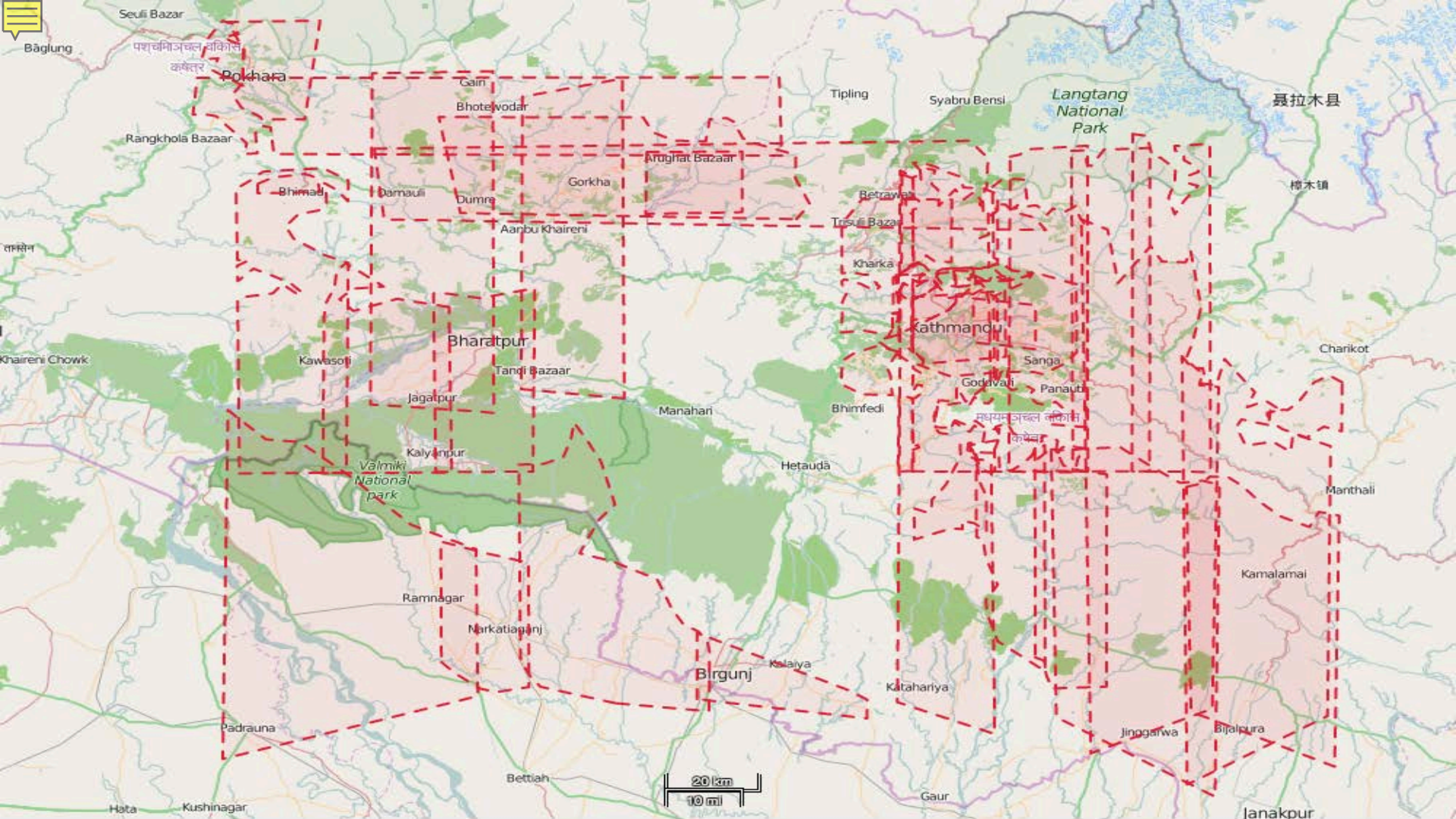
Nepal Earthquake

April 2015









7.8 Earthquake hits Nepal

Help disaster response teams by mapping damage from the recent deadly 7.8 magnitude earthquake that hit near Kathmandu, Nepal. Start by comparing before and after imagery and placing a tag in the center of every damaged building, damaged road and area of major destruction you find. To compare before and after imagery, press the "Q" and "W" keys on your keyboard or click the "Newest" and "Oldest" buttons in the bottom right corner of the map.

Search satellite images for...



Damaged
Building

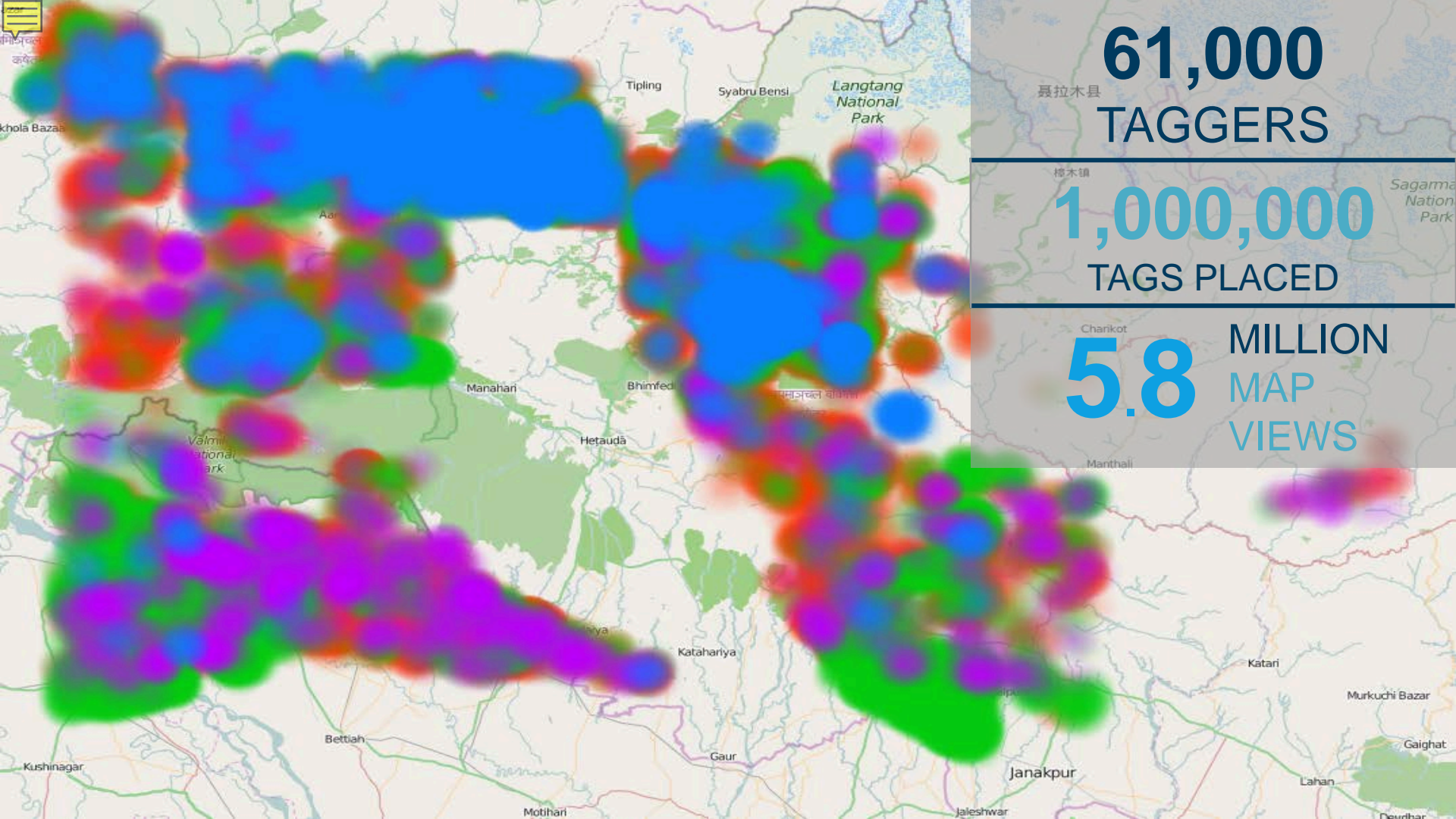


Major
Destruction



Damaged
Road

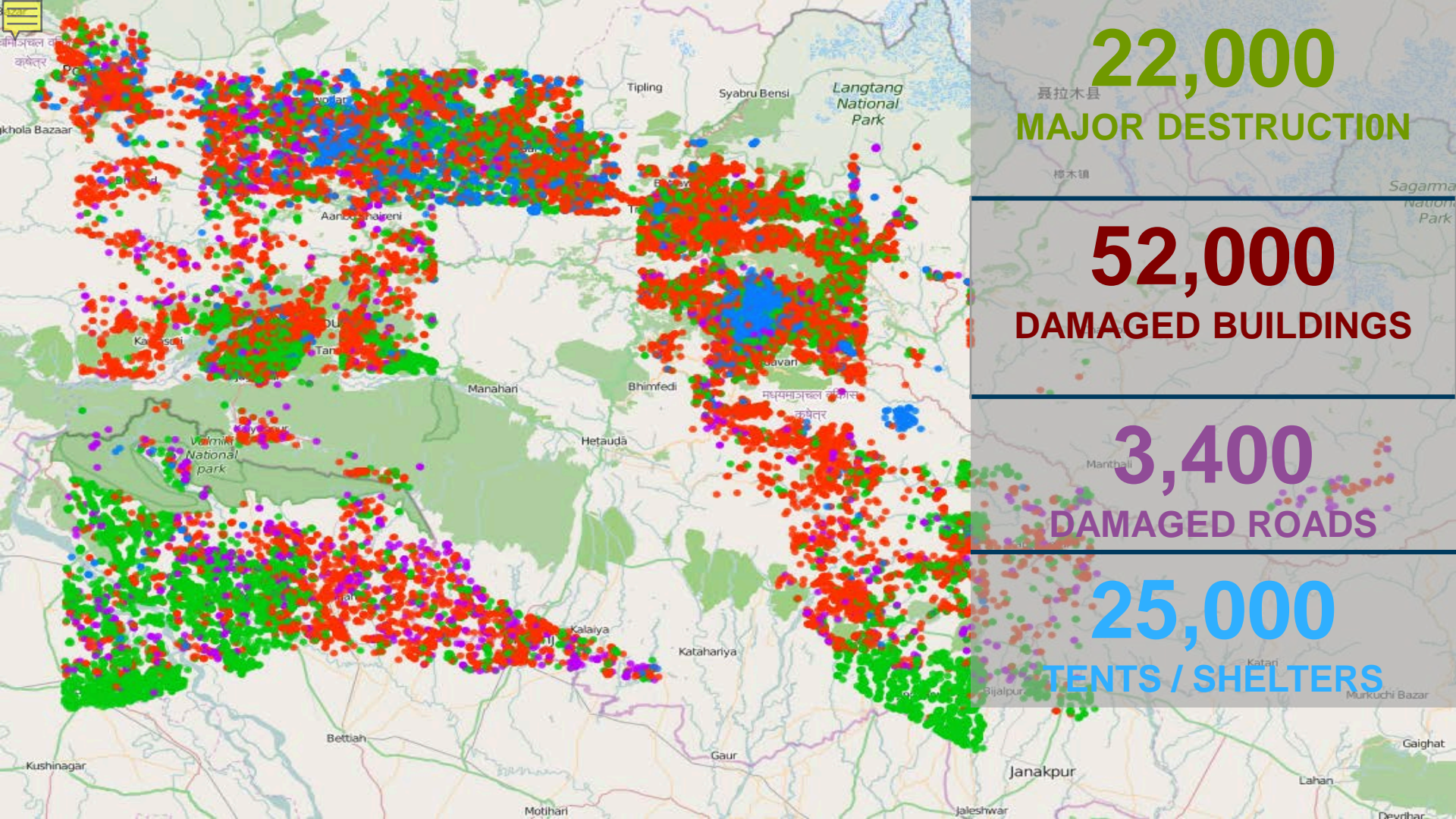
START SEARCHING



61,000
TAGGERS

1,000,000
TAGS PLACED

5.8 MILLION
MAP
VIEWS



22,000

MAJOR DESTRUCTION

52,000

DAMAGED BUILDINGS

3,400

DAMAGED ROADS

25,000

TENTS / SHELTERS

DAMAGED ROADS



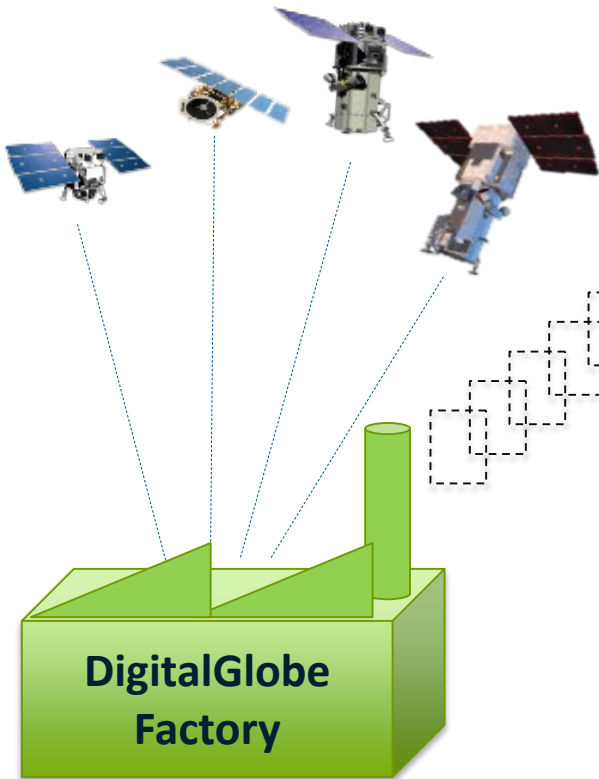
DAMAGED BUILDINGS



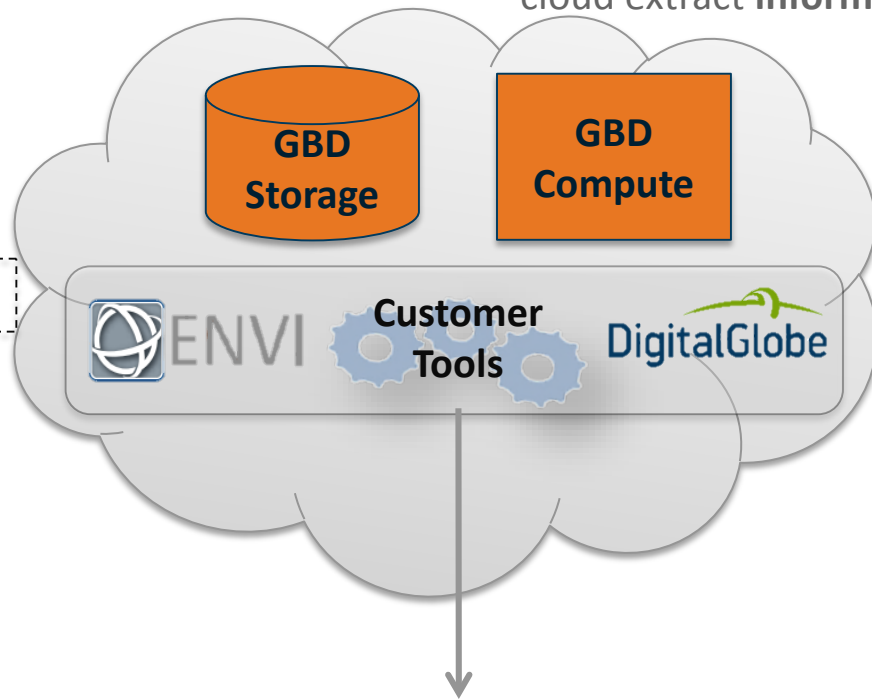
TENTS / SHELTERS



1 Imagery automatically ingested as it is collected



2 Algorithms hosted in the cloud extract **information**



3

Location information powers new **applications**



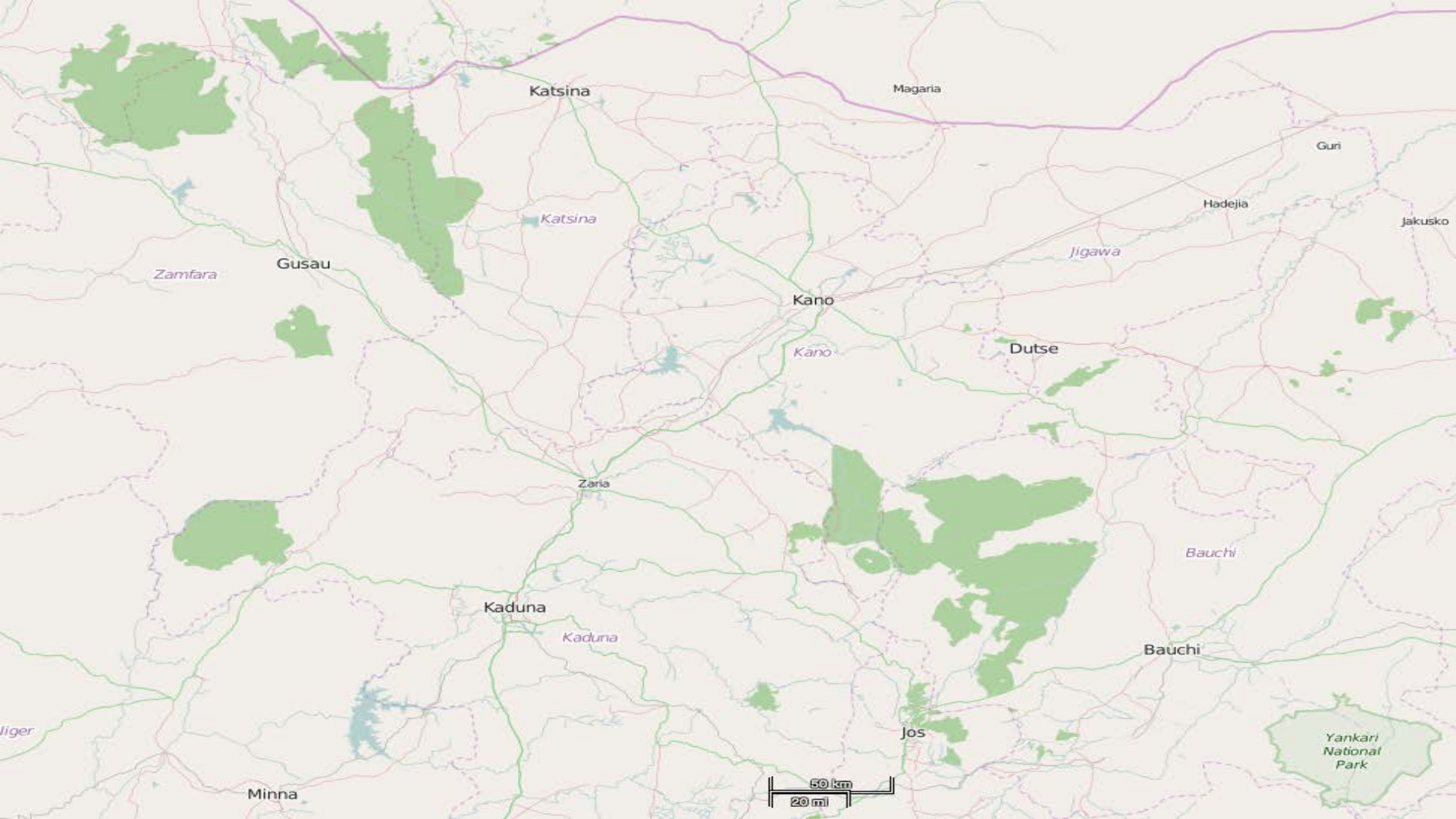
Enrichment of Geo Data

Population Mapping
Algorithm Output Validation

Kano, Nigeria | April 2015







Katsina

Magaria

Guri

Hadejia

Jakusko

Katsina

Jigawa

Zamfara

Gusau

Kano

Kano

Dutse

Zaria

Kaduna

Kaduna

Bauchi

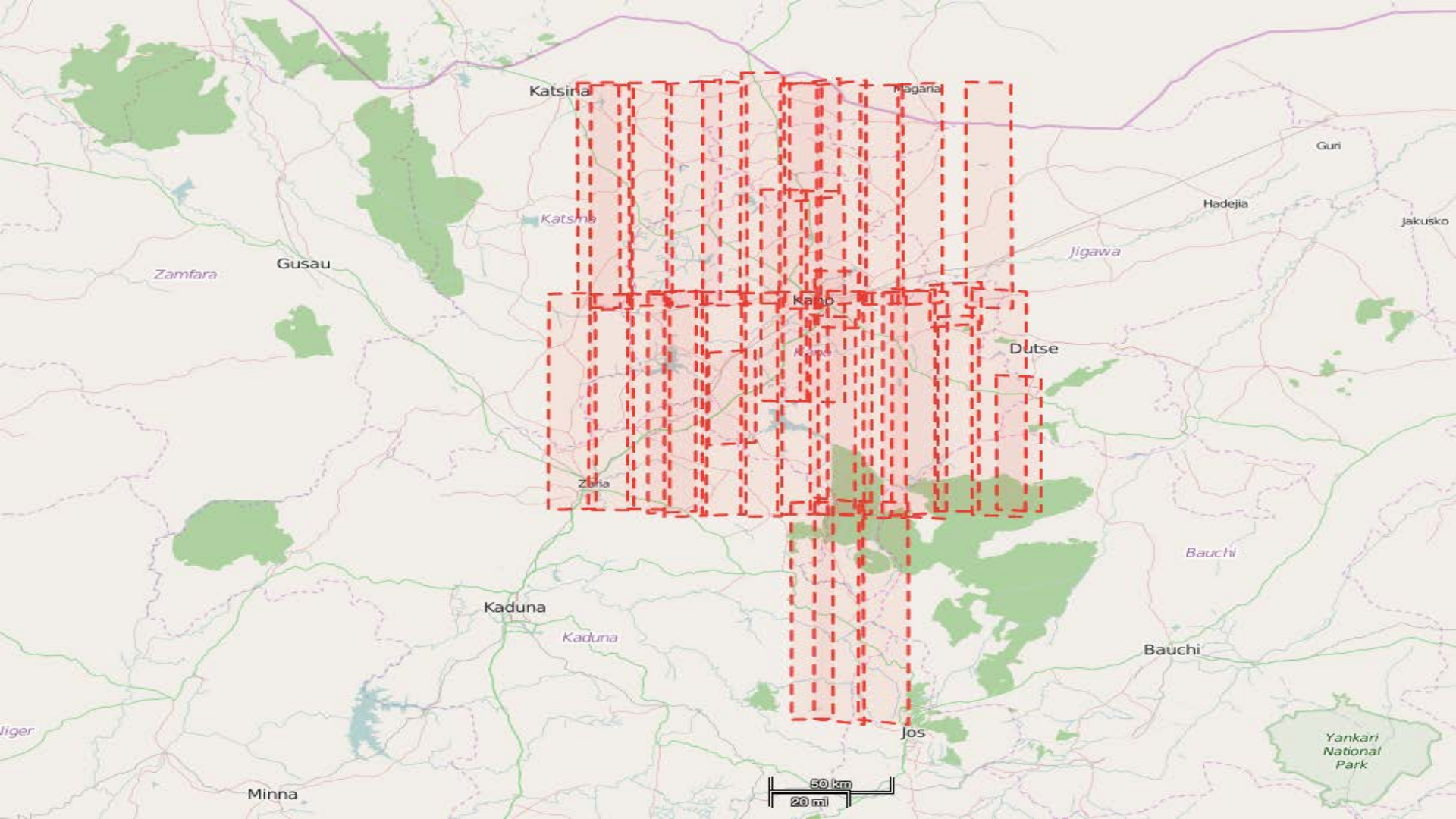
Bauchi

Jos

Minna

Yankari
National
Park

50 km
20 mi







Choose the best label for the highlighted area.

☒ Building(s) 1

☒ No Building(s) 2

Share this Location

20m
100 ft

POWERED by DigitalGlobe
Sat 6/14/2014 10:23 AM UTC

Choose the best label for the highlighted area.

- ☒ Building(s) 1
- ☒ No Building(s) 2

Share this Location



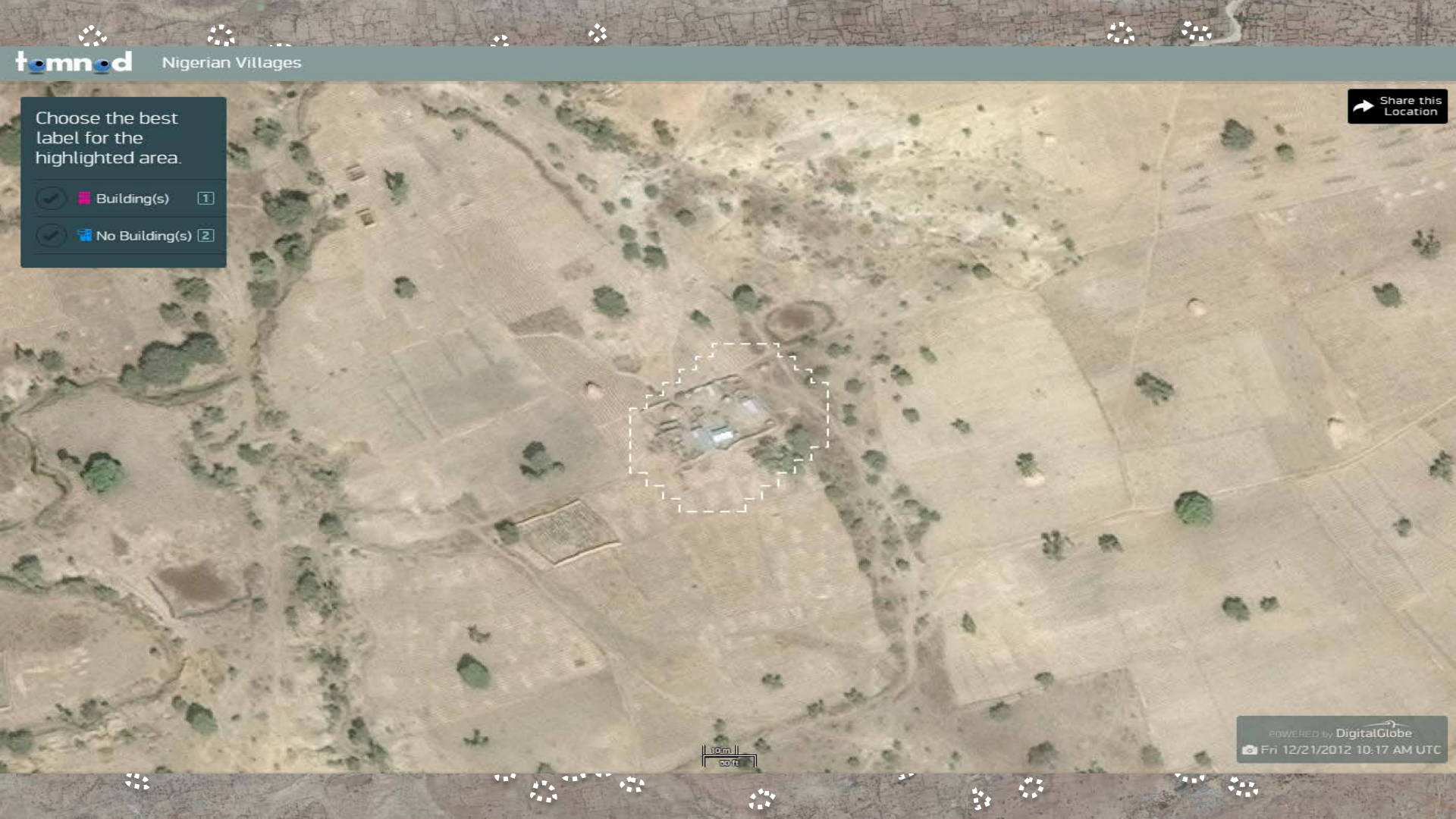


Choose the best label for the highlighted area.

- ☒ Building(s) 1
- ☒ No Building(s) 2

Share this Location

10 m
30 ft



Choose the best label for the highlighted area.

☒ Building(s) 1

☒ No Building(s) 2

Share this Location

10m
30 ft



Choose the best label for the highlighted area.

- ☒ Building(s) 1
- ☒ No Building(s) 2

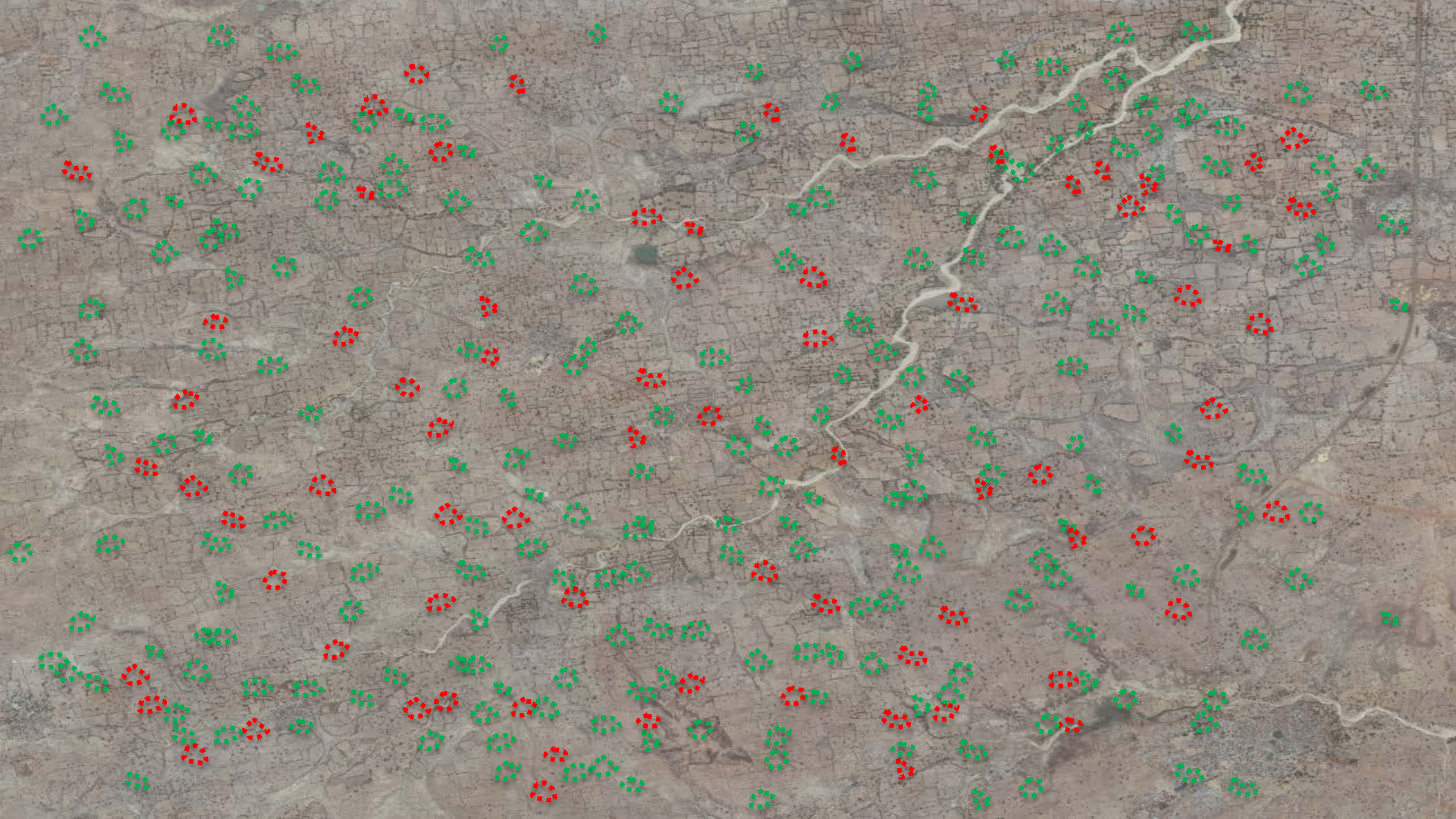
Share this Location

30m
100 ft

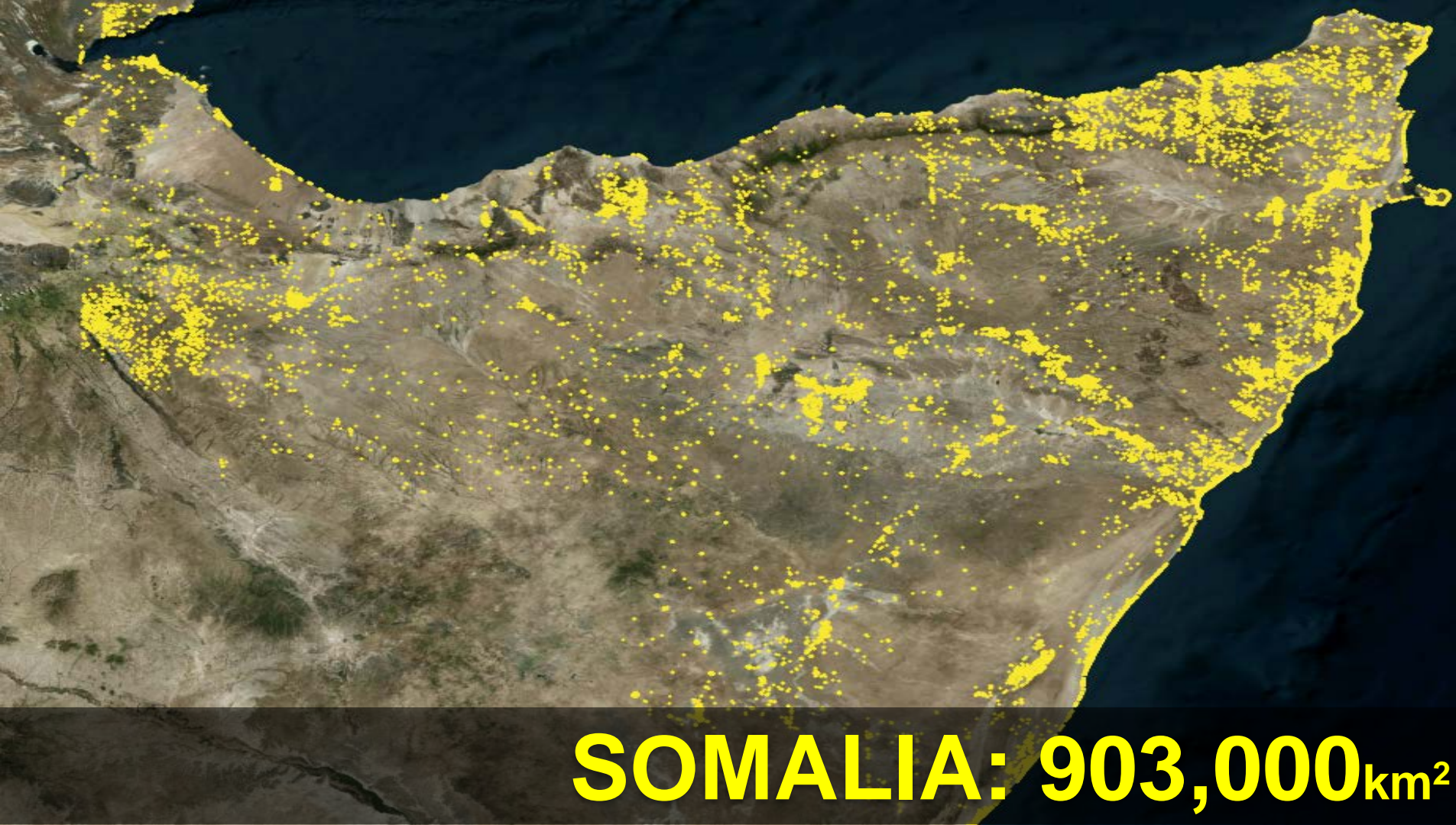


A large, faint clock face is centered in the background. It has a circular border and twelve square hour markers. The hands are thin and grey, with the hour hand pointing to 12 and the minute hand pointing to 2.

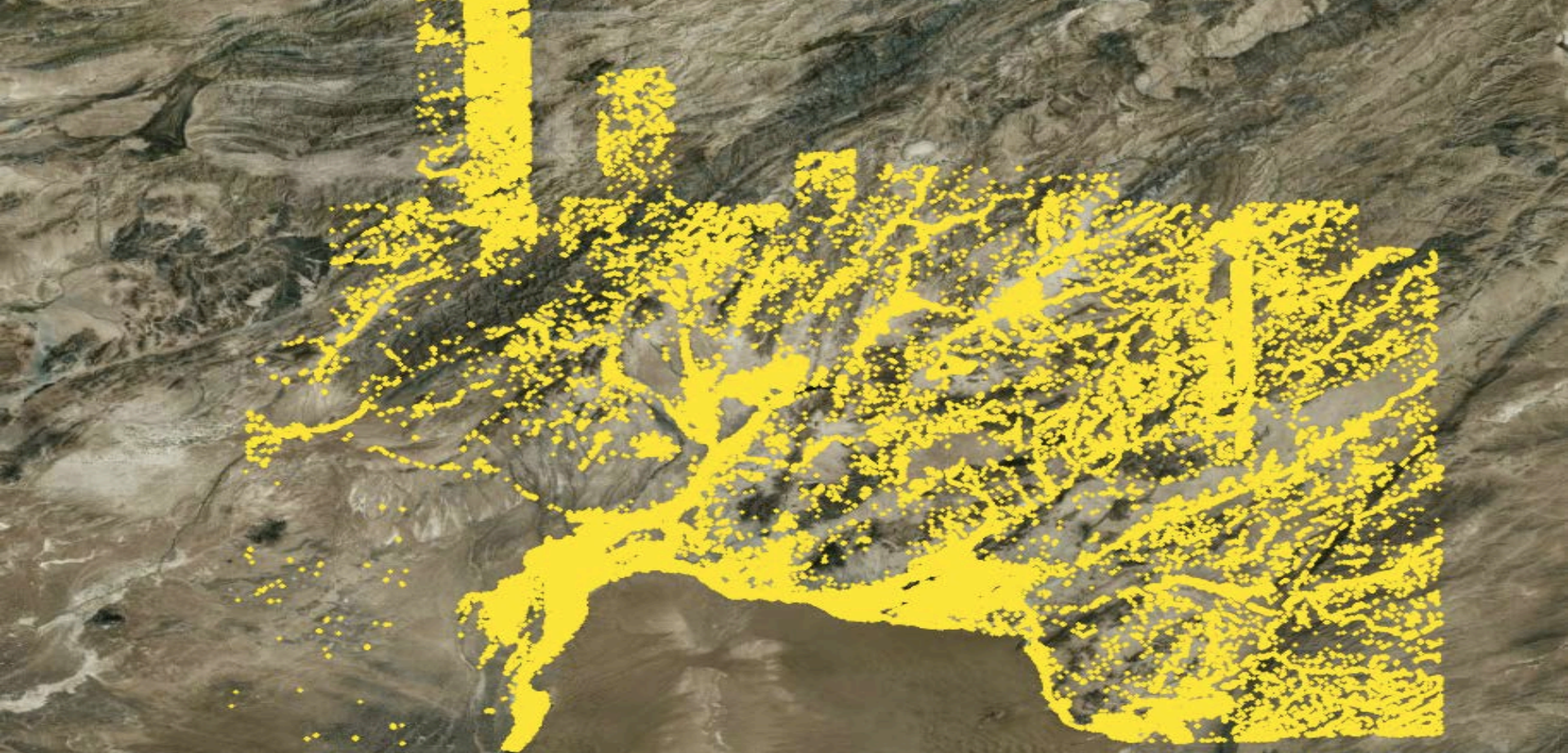
... repeat 680,000 times ...





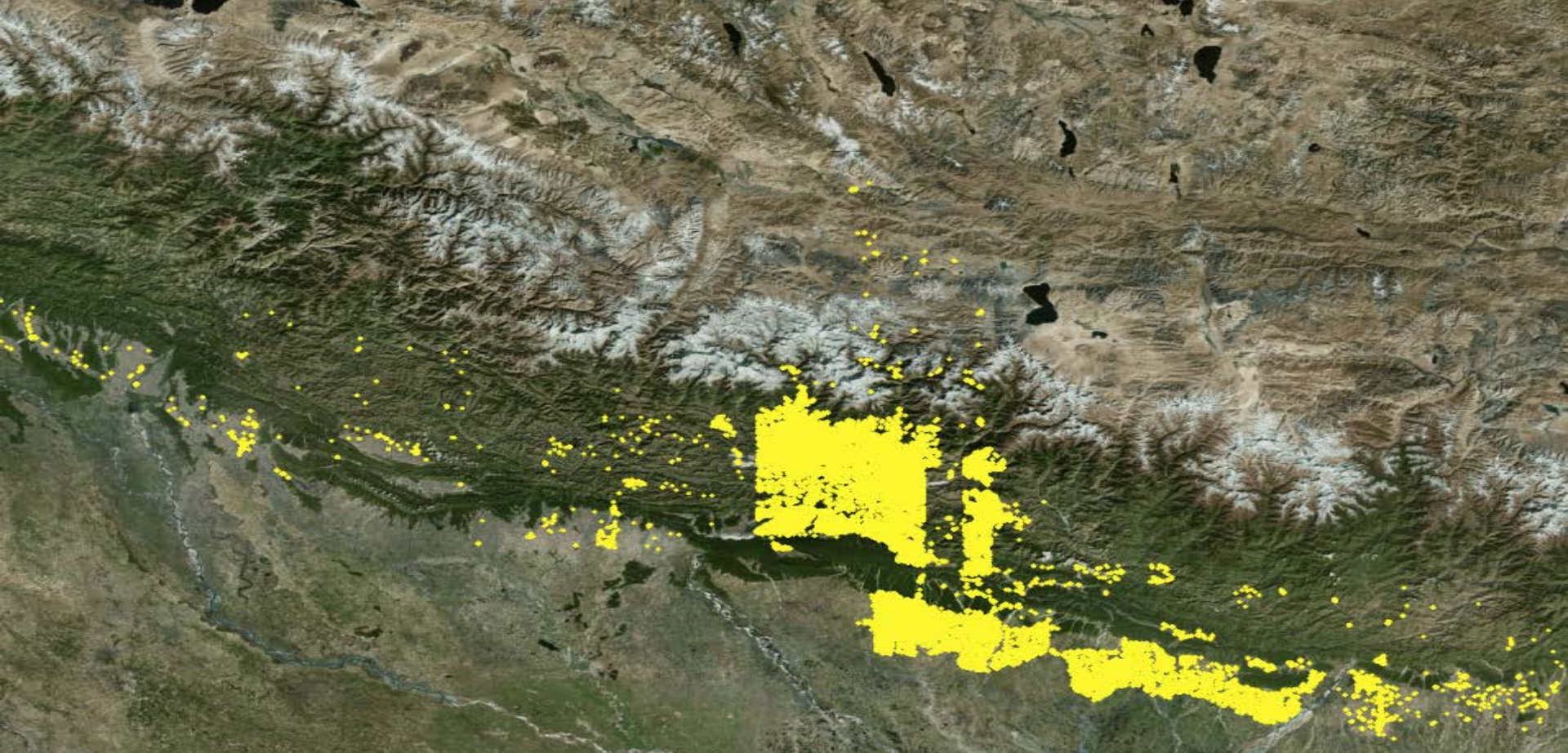


SOMALIA: 903,000_{km}²



AFGHANISTAN: 265,000_{km²}

Image courtesy of NASA Earthstar Geographics SIO

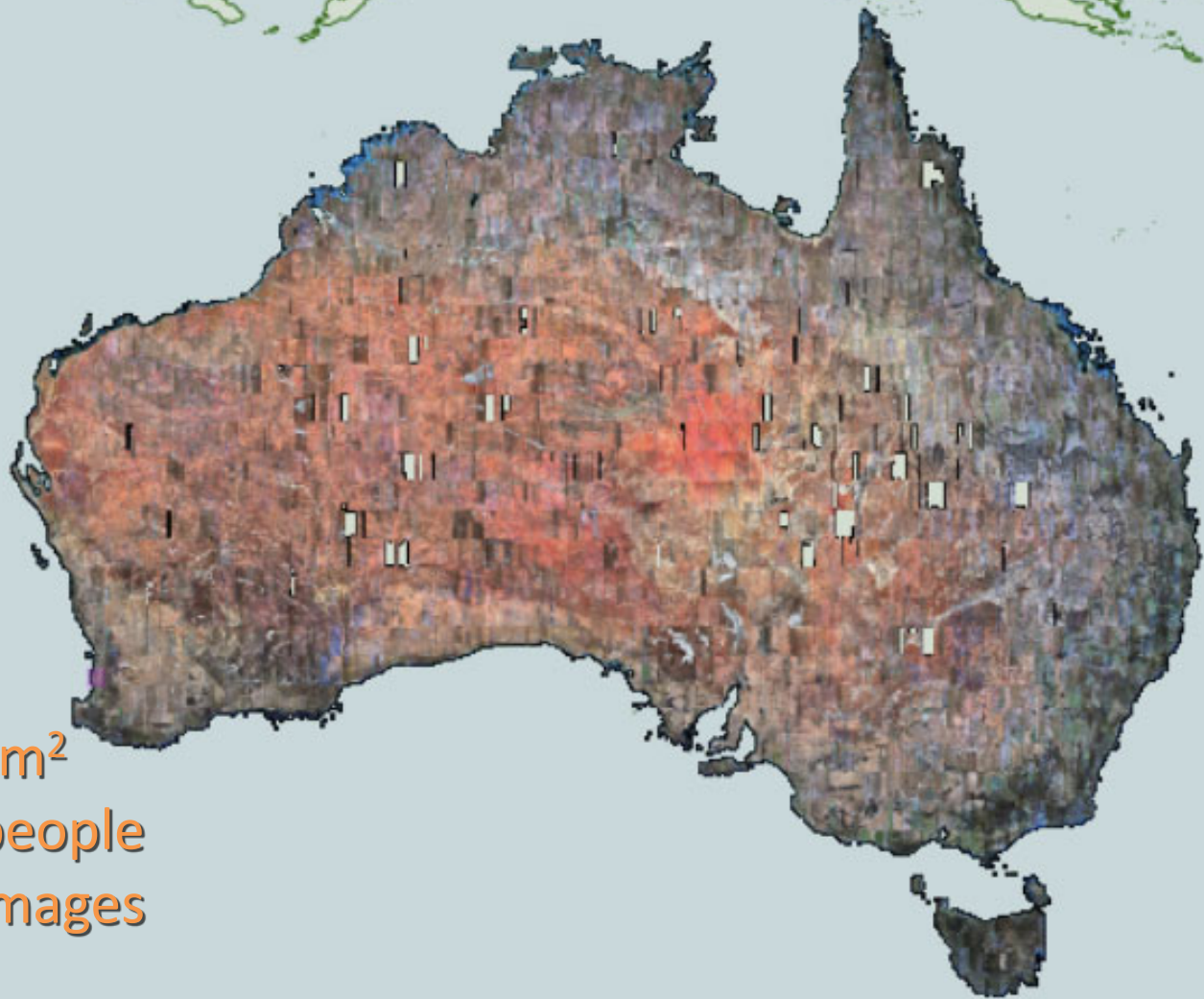


NEPAL: 100,000 km^2



7,692,000 km²

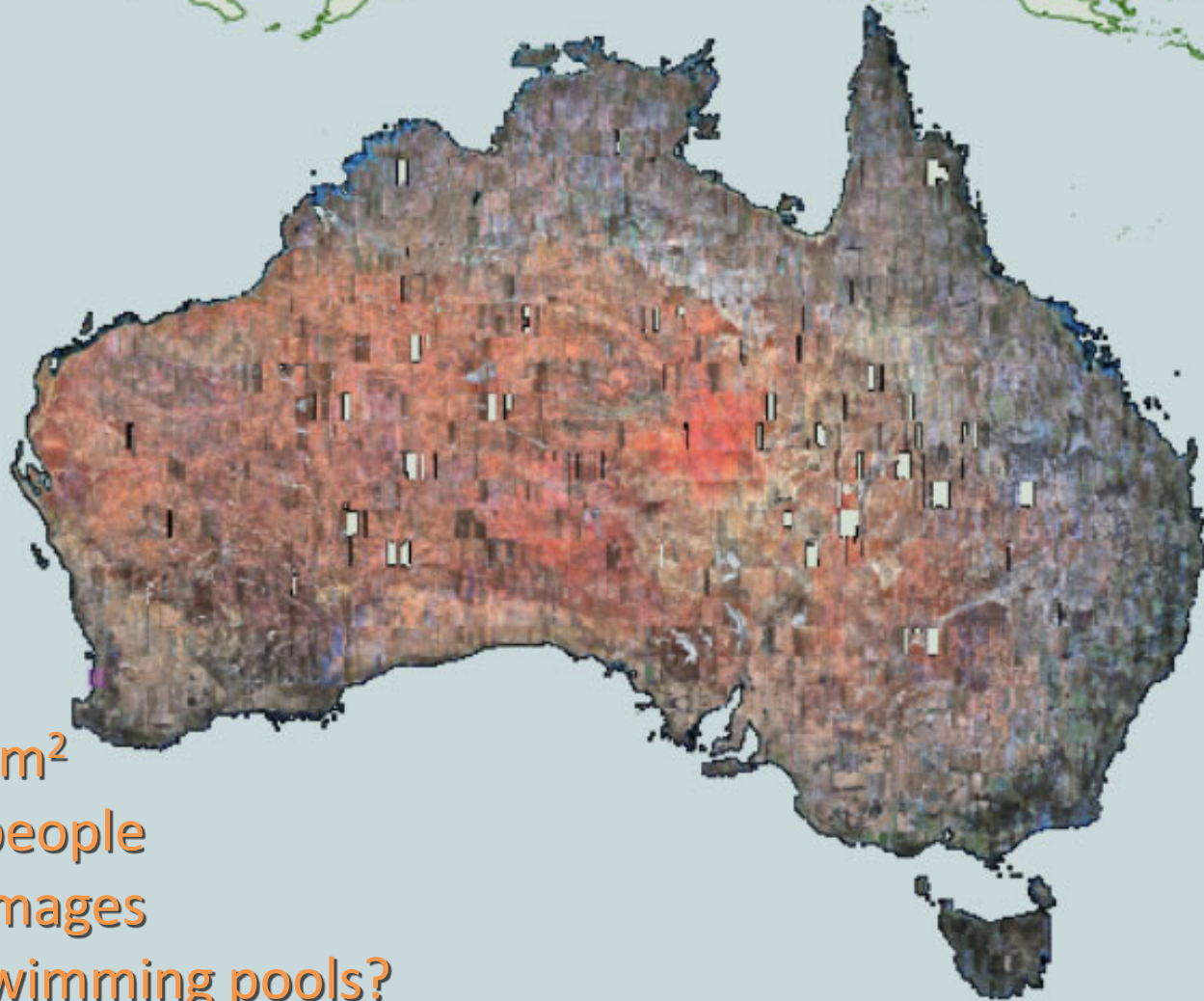
24,000,000 people



7,692,000 km²

24,000,000 people

19,109 images



7,692,000 km²

24,000,000 people

19,109 images

How many swimming pools?







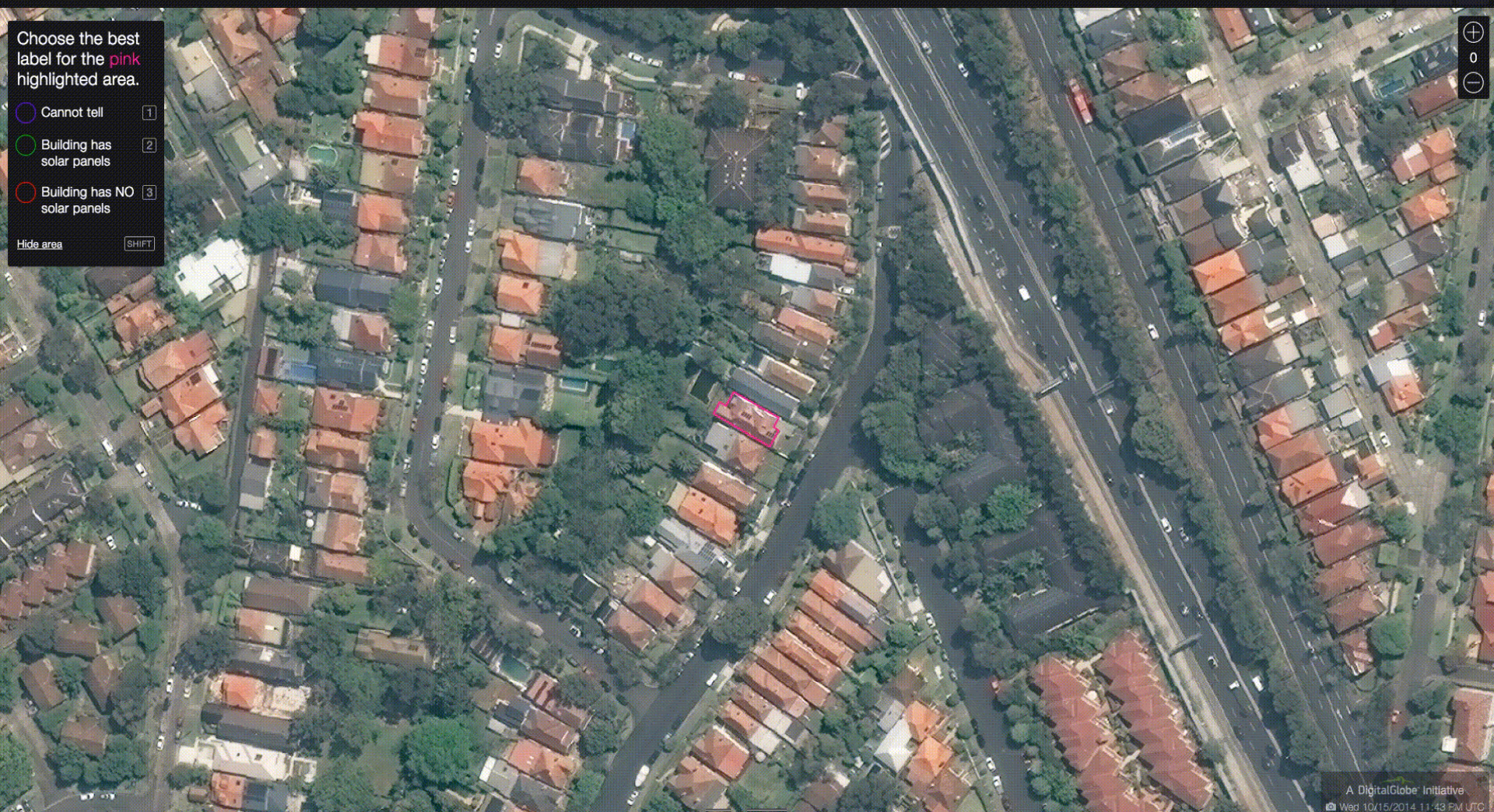
Property ID	lu-bar-123
Address	45 Wallaby Road, Adelaide

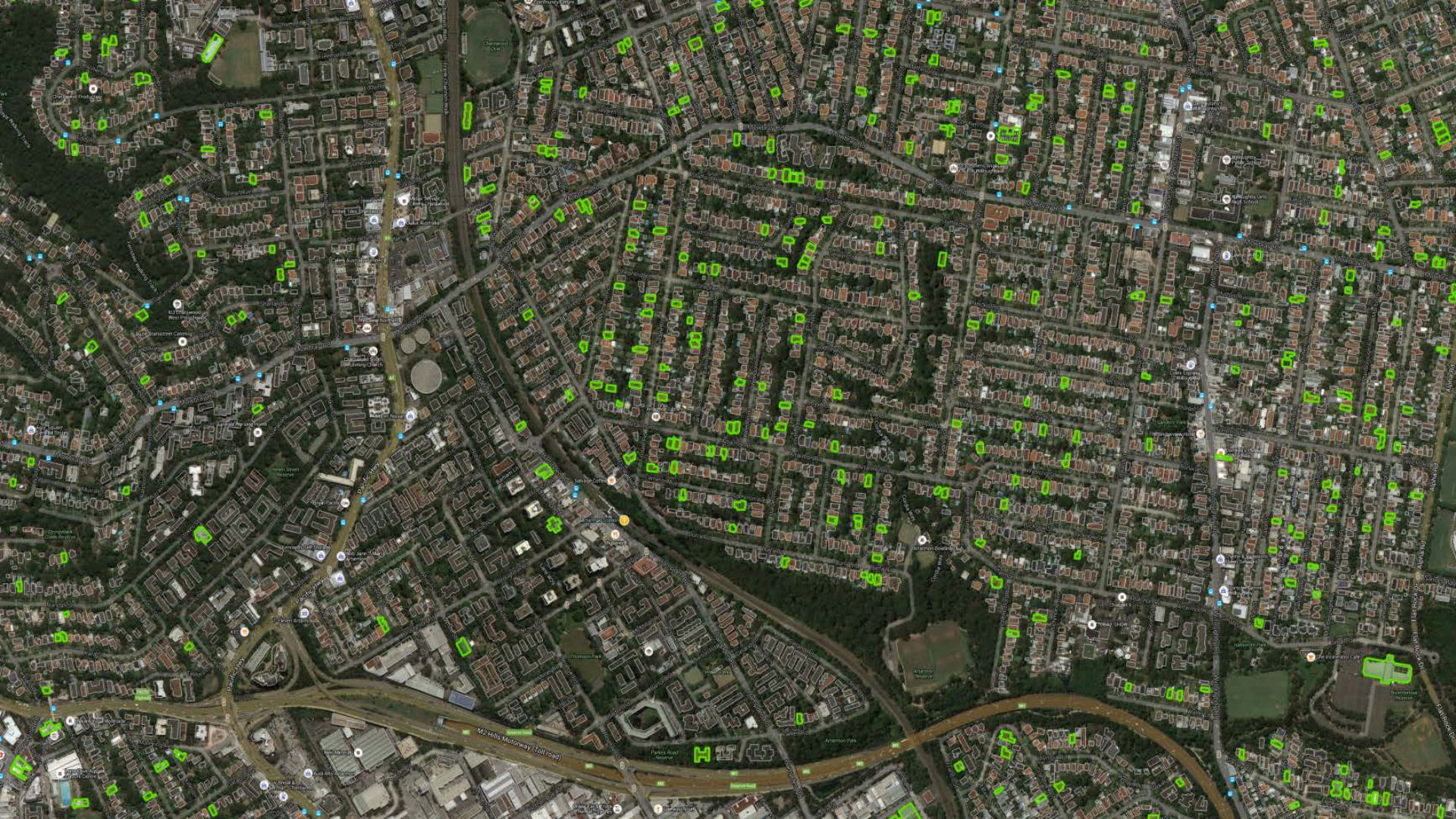


Choose the best label for the pink highlighted area.

- ☐ Cannot tell 1
- ☐ Building has solar panels 2
- ☐ Building has NO solar panels 3

Hide area SHIFT



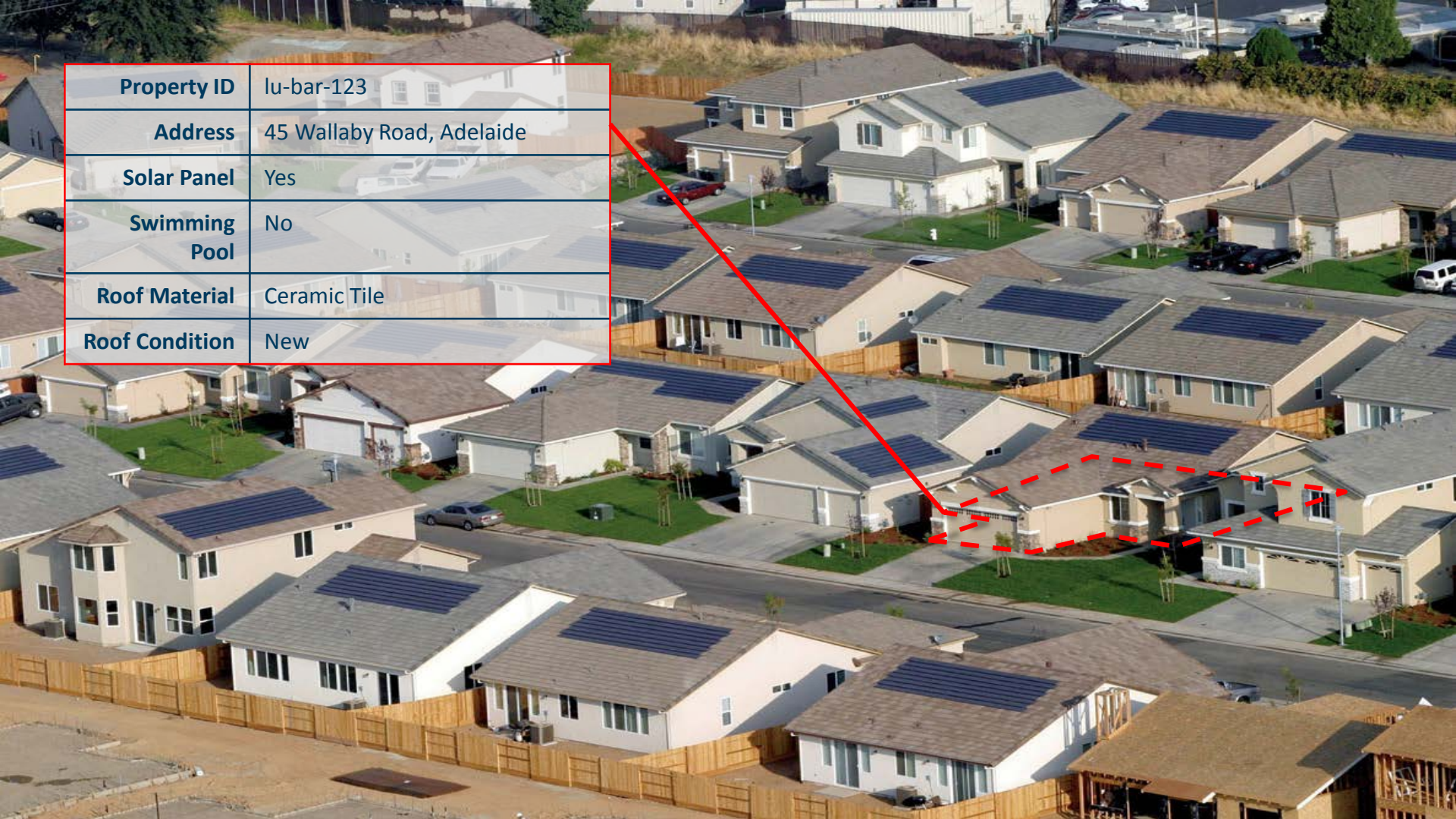


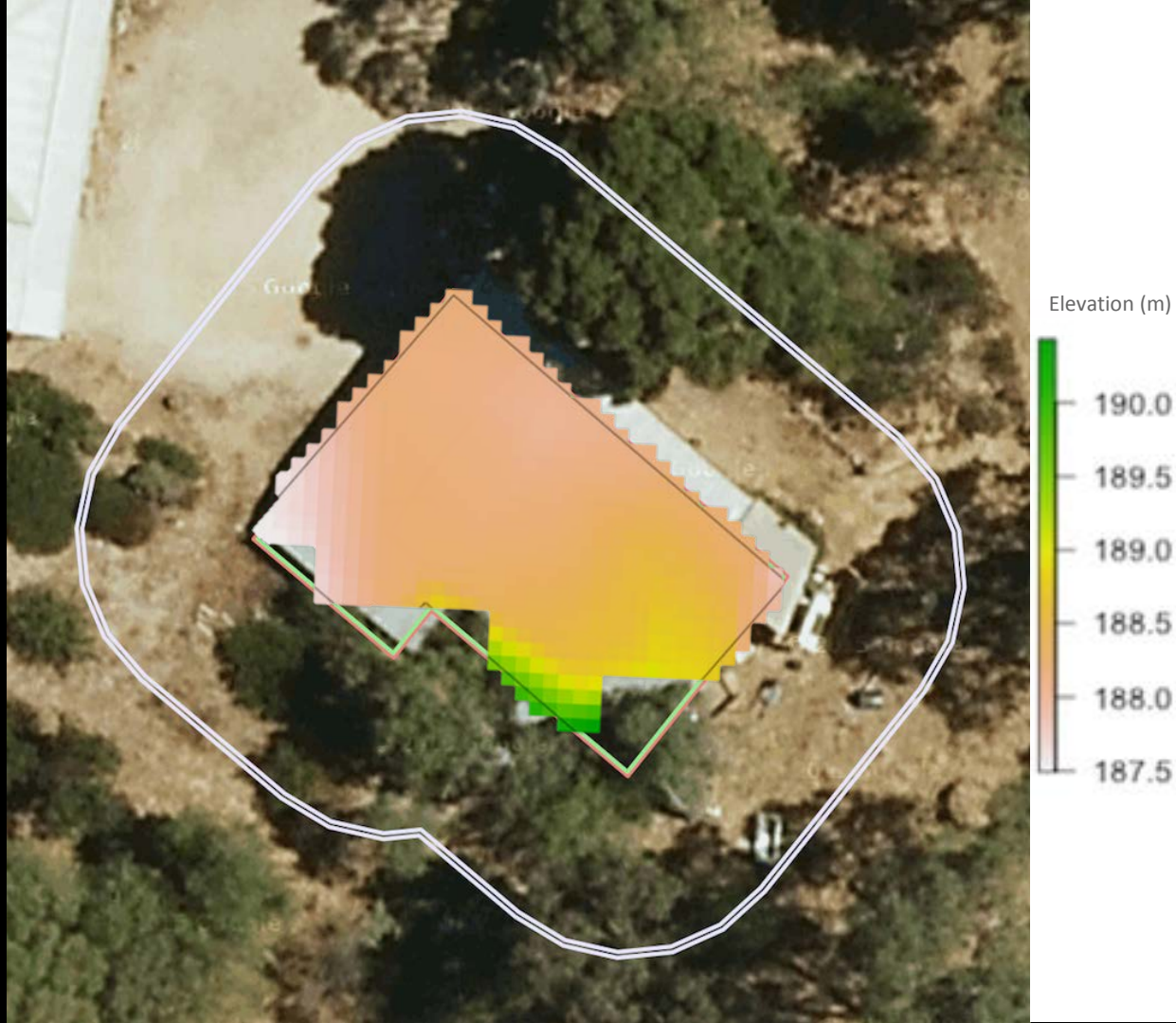
Property ID	lu-bar-123
Address	45 Wallaby Road, Adelaide
Solar Panel	Yes
Swimming Pool	No





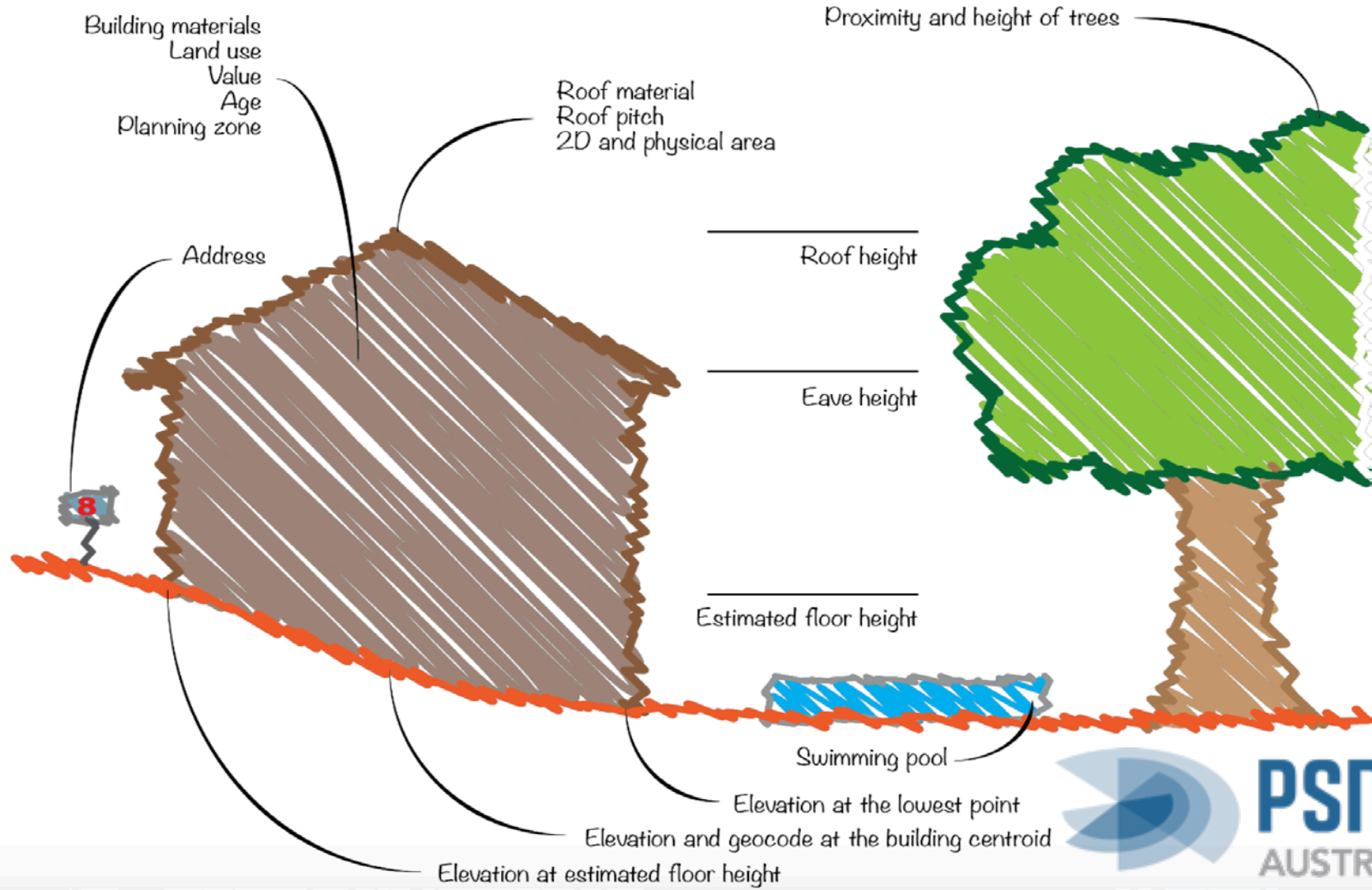
Property ID	lu-bar-123
Address	45 Wallaby Road, Adelaide
Solar Panel	Yes
Swimming Pool	No
Roof Material	Ceramic Tile
Roof Condition	New





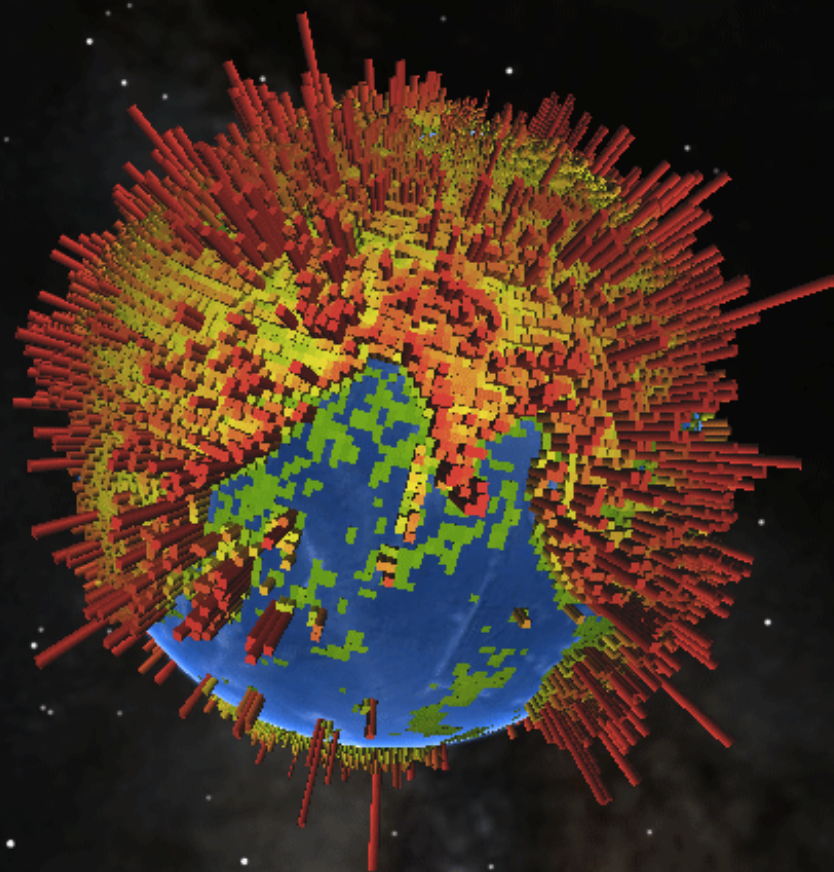
Property ID	lu-bar-123
Address	45 Wallaby Road, Adelaide
Solar Panel	Yes
Swimming Pool	No
Roof Material	Ceramic Tile
Roof Condition	New
Roof Elev.	74m
Ground Elev.	70m
Trees?	No
...	







tomnod_url															
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
1	wkt_geom	RoofRange	GroundMin	CollectDate	SolarPan	CreateDate	RoofMax	Height	GroundMed	EaveMed	tomnod_label	tomnod_validation_score	tomnod_url	RoofMatNum	Ph
2	Polygon ((330588.93311727712890059	8	106	20141015		0	20150706	114	8	111	112	no solar panels	0.999838	http://www.tomnod.com/campaign/a	8
3	Polygon ((330491.49981521791778505	5	94	20141015		0	20150706	99	5	96	96	no solar panels	0.997023	http://www.tomnod.com/campaign/a	13
4	Polygon ((329913.83059999998658895	4	60	20141015		0	20150706	64	5	62	62	no solar panels	0.992882	http://www.tomnod.com/campaign/a	11
5	Polygon ((329965.78210000041872263	10	61	20141015		0	20150706	71	10	65	65	no solar panels	0.996389	http://www.tomnod.com/campaign/a	11
6	Polygon ((329982.01649999991059303	7	61	20141015		0	20150706	68	7	65	65	no solar panels	0.999902	http://www.tomnod.com/campaign/a	0
7	Polygon ((330099.60940000042319298	10	69	20141015		0	20150706	79	10	71	71	no solar panels	0.999801	http://www.tomnod.com/campaign/a	15
8	Polygon ((330085.90799999982118607	12	71	20141015		0	20150706	83	12	72	72	not sure	0.999628	http://www.tomnod.com/campaign/a	15
9	Polygon ((330100.33399999979883432	3	69	20141015		0	20150706	72	4	69	69	no solar panels	0.999762	http://www.tomnod.com/campaign/a	15
10	Polygon ((330100.56689999997615814	4	68	20141015		0	20150706	72	4	70	70	no solar panels	0.996344	http://www.tomnod.com/campaign/a	15
11	Polygon ((330110.07569999992847443	6	64	20141015		0	20150706	70	6	67	67	no solar panels	0.995516	http://www.tomnod.com/campaign/a	11
12	Polygon ((330131.1222999999881722	4	62	20141015		0	20150706	66	4	64.5	64.5	no solar panels	0.984179	http://www.tomnod.com/campaign/a	4
13	Polygon ((330143.64499999955296516	2	77	20141015		0	20150706	79	3	77	78	no solar panels	0.995088	http://www.tomnod.com/campaign/a	11
14	Polygon ((330135.791899999960362911	5	72	20141015		0	20150706	77	6	75	75	no solar panels	0.983756	http://www.tomnod.com/campaign/a	0
15	Polygon ((330146.73919999971985817	7	70	20141015		0	20150706	77	7	73	73	no solar panels	0.99791	http://www.tomnod.com/campaign/a	11
16	Polygon ((330162.21920000016689301	6	69	20141015		0	20150706	75	6	72	72.5	no solar panels	0.951567	http://www.tomnod.com/campaign/a	11
17	Polygon ((330181.19039999973028898	5	72	20141015		0	20150706	77	5	76	75	no solar panels	0.99972	http://www.tomnod.com/campaign/a	11
18	Polygon ((330203.2002999996766448	3	70	20141015		0	20150706	73	3	71.5	71.5	no solar panels	0.995994	http://www.tomnod.com/campaign/a	10
19	Polygon ((330174.79920000024139881	8	70	20141015		0	20150706	78	8	75	74	solar panels	0.999935	http://www.tomnod.com/campaign/a	7
20	Polygon ((330185.85969999991357327	5	68	20141015		0	20150706	73	6	71	71	no solar panels	0.999898	http://www.tomnod.com/campaign/a	15
21	Polygon ((330239.73510000016540289	4	71	20141015		0	20150706	75	4	73	73	no solar panels	0.999697	http://www.tomnod.com/campaign/a	15
22	Polygon ((330238.46079999953508377	5	70	20141015		0	20150706	75	5	72	72	no solar panels	0.999697	http://www.tomnod.com/campaign/a	11
23	Polygon ((330245.09509999956935644	7	67	20141015		0	20150706	74	7	70	70.5	no solar panels	0.991929	http://www.tomnod.com/campaign/a	11
24	Polygon ((330253.93979999981820583	8	64	20141015		0	20150706	72	9	67.5	67.5	no solar panels	0.999033	http://www.tomnod.com/campaign/a	11
25	Polygon ((330236.3622000003233552	14	61	20141015		0	20150706	75	14	65	65.5	no solar panels	0.979561	http://www.tomnod.com/campaign/a	10
26	Polygon ((330268.4244999997317791	5	56	20141015		0	20150706	61	5	60	60.5	no solar panels	0.978226	http://www.tomnod.com/campaign/a	11
27	Polygon ((330280.78600000031292439	11	68	20141015		0	20150706	79	11	72	72	no solar panels	0.999602	http://www.tomnod.com/campaign/a	15
28	Polygon ((333905.63260000012814999	3	112	20141015		0	20150706	115	4	113	113	no solar panels	0.983703	http://www.tomnod.com/campaign/a	11
29	Polygon ((333925.0032999998211861	4	112	20141015		0	20150706	116	4	114	114	no solar panels	0.982267	http://www.tomnod.com/campaign/a	8
30	Polygon ((333907.6258428.5, 333915.8	3	113	20141015		0	20150706	116	4	114	114	no solar panels	0.99876	http://www.tomnod.com/campaign/a	15
31	Polygon ((333909.16720000002533197	5	109	20141015		0	20150706	114	6	111	111.5	not sure	0.930873	http://www.tomnod.com/campaign/a	11
32	Polygon ((333882.1403999999165535	1	111	20141015		0	20150706	112	2	112	112	no solar panels	0.997696	http://www.tomnod.com/campaign/a	11
33	Polygon ((333915.692200000397861	8	104	20141015		0	20150706	112	8	108	108	no solar panels	0.998543	http://www.tomnod.com/campaign/a	15
34	Polygon ((333758.90799999982118607	4	107	20141015		0	20150706	111	5	109	109	no solar panels	0.990107	http://www.tomnod.com/campaign/a	11
35	Polygon ((333737.88080000039190054	5	107	20141015		0	20150706	112	5	109	109	no solar panels	0.959103	http://www.tomnod.com/campaign/a	15
36	Polygon ((333713.04129999969154596	7	107	20141015		0	20150706	114	7	109	109	no solar panels	0.996279	http://www.tomnod.com/campaign/a	6



Learn More: digitalglobe.com
Join the Crowd: tomnod.com



lukeinusa@gmail.com
@lukeinusa